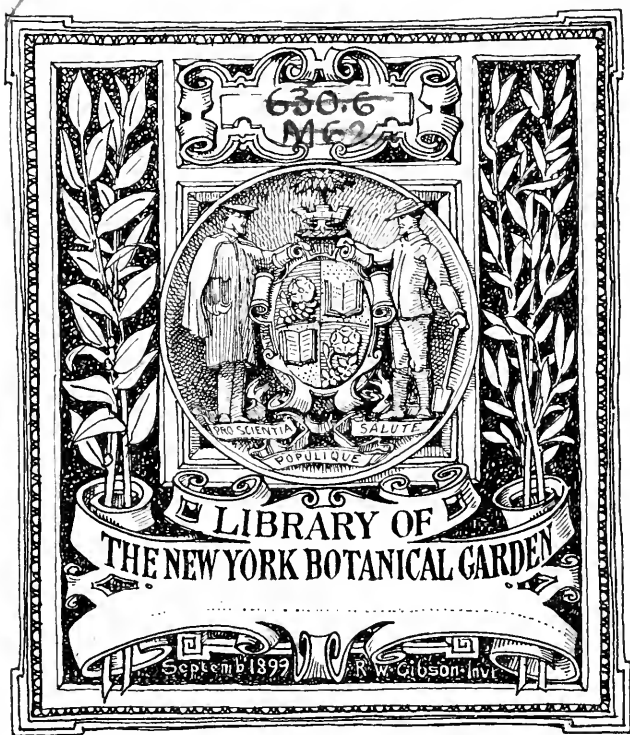


XA .N7775 1871



FIRST REPORT
OF THE
MICHIGAN STATE
POMOLOGICAL SOCIETY.



BY AUTHORITY.

LANSING:
W. S. GEORGE & CO., STATE PRINTERS AND BINDERS.
1872.

NA
1877
1871

REPORT OF THE SECRETARY

OF THE

MICHIGAN STATE POMOLOGICAL SOCIETY.

GRAND RAPIDS, Dec. 31, 1871.

TO THE SECRETARY OF STATE:

SIR,—In compliance with legal requisitions, the accompanying Reports for the year 1870 and 1871, with supplementary papers, are respectfully submitted for publication.

A. T. LINDERMAN,

Secretary of the Michigan State Pomological Society.

NOTE.—A portion of the matter contained in the Report for 1870 is also printed in the Report of the Secretary of the State Board of Agriculture for the same year. But in order to give a complete record of the Pomological Society, this repetition was unavoidable.

SECRETARY'S ANNUAL REPORT.

—◆—
1870.

REPORT.

THE ORGANIZATION OF THE SOCIETY.

To the Members and Officers of the Michigan State Pomological Society :

The soil, climate, and geographical position of the State of Michigan have shown that she is a favored region, and well adapted to the cultivation and growth of all fruits suitable to a Northern and temperate clime. For this, the State is now attracting the attention of thousands throughout the country, and her own horticulturists seem to be awaking to a realization of their location. Within the recollection of many in mature life, there were but few varieties of large or small fruits cultivated in the State; but, to-day, as we look over a vast country, from lake to lake, we see large and flourishing orchards of apple, pear, peach, and cherry, besides thousands of acres devoted to the growing of strawberries, grapes, and other small fruits. This new industry is rapidly assuming important proportions, and it is desirable that those engaged in fruit culture should seek a closer connection with each other, and should establish an organization which should directly represent their common interests.

THE INFORMAL MEETING.

Such was the growing importance of this interest in the State, and particularly in that portion bordering upon Lake Michigan, that it was thought best by leading horticulturists to call a public meeting with a view to the organization of a

permanent State Society. Consequently, notices were issued by A. T. Linderman and others, and a meeting was called at Sweet's Hotel, Grand Rapids, Feb. 11, 1870. This meeting was attended by gentlemen from different portions of the State, and S. L. Fuller of Grand Rapids was elected President, Sluman S. Bailey and L. S. Scranton, were elected Vice-Presidents, A. T. Linderman was chosen Secretary, and E. U. Knapp, Treasurer. Henry S. Clubb, S. L. Fuller, and L. S. Scranton were appointed a committee to draft articles of association, and Jacob Ganzhorn, Wm. Voorhis, and James Hamilton were appointed an Executive Committee.

THE FIRST REGULAR MEETING.

An adjourned meeting of the Society was held in Luce's Hall, on Saturday, February 26, 1870, S. L. Fuller in the chair. At this meeting, Articles of Association were introduced by H. S. Clubb, which were discussed, amended and adopted.

ARTICLES OF ASSOCIATION OF THE STATE POMOLOGICAL SOCIETY OF MICHIGAN.

The undersigned, at the city of Grand Rapids, this 26th day of February, 1870, hereby associate themselves under the name and style of the State Pomological Society of Michigan, and agree to be regulated by the following articles of association, until proper legislation is obtained for a legal organization :

ARTICLE I.—The object of the Society is to develop facts, and promulgate information, as to the best varieties of fruit for cultivation, in the fruit regions of the State of Michigan, and the best methods of cultivation.

ARTICLE II.—The officers of the Society shall consist of a President, Treasurer, and Secretary, who, together, shall constitute an Executive Committee, with full power to call meetings and transact business under

the direction of the Society. [NOTE.—This article was amended at the December meeting.]

ARTICLE III.—The office of the Society shall be in the city of Grand Rapids.

ARTICLE IV.—The annual meeting for the election of officers shall be on the first Tuesday in December, in each year; the officers elected at such meeting to commence service on the first of January following.

ARTICLE V.—The officers shall remain and perform their respective duties until their successors are appointed or elected by the Society; but the regular term of office shall expire on the 31st of December in each year.

ARTICLE VI.—The Society shall hold a meeting on the first Tuesday of every month, at such place as the Executive Committee shall designate, under the direction of the Society.

ARTICLE VII.—Every person who subscribes, or who may subscribe, to these articles, and pay to the Treasurer the sum of one dollar per annum, shall be entitled to membership unless otherwise voted at a regular meeting of the Society.

ARTICLE VIII.—No money shall be disbursed except on an order signed by the Secretary and by direction of the Executive Committee.

ARTICLE IX.—These articles may be amended at any regular meeting of the Society, by a majority vote of such meeting.

ARTICLE X.—By-laws may be passed at any regular meeting.

ARTICLE XI.—The Executive Committee shall require of the Treasurer such security as they may deem necessary for the safe keeping and proper disbursement of the funds of the Society in his hands.

These articles of association were signed by a goodly number of gentlemen present, who congratulated themselves that the Society was thus formally organized.

The following gentlemen were elected honorary members: Wm. Adair of Detroit, J. G. Ramsdell of Grand Traverse, Townsend E. Gidley of Grand Haven, Daniel Upton of Black Lake.

On motion of Mr. Jacob Ganzhorn of Spring Lake, the following officers were elected by ballot: President, H. G. Saunders of Grand Rapids; Treasurer, S. L. Fuller; Secretary, A. T. Linderman.

A Corresponding Committee was elected, composed of Henry S. Clubb, James Hamilton, and Daniel Upton.

THE APRIL MEETING.

The first display of fruit made at a meeting of this Society was on Tuesday, April 5. President Saunders brought in a basket of beautiful fruit, among others very fine and rich specimens of the Russet, and large, bright-looking Baldwins. Mr. Holt of Cascade offered fine samples of the Swaar and Peck's Pleasant. Mr. Houghtaling of Grand Rapids town exhibited large, healthy, brown-looking Baldwins, and a few genuine Roxbury Russets. Mr. Erastus Hall of Grand Rapids sent in a basket of bright, red-looking Baldwins. Mr. J. H. Ford of Paris brought a basket of brotherly-looking Jonathans and some hardy English Russets. Rev. H. E. Waring of Grand Rapids town sent specimens of the Baldwin, Roxbury Russet, and Tallman Sweeting. Mr. Noah P. Husted of Lowell presented a basket of splendid Wageners, attractive to the eye and delicious to the taste.

THE IMPORTANCE OF THE SOCIETY—THE STATE OUGHT TO
AID IT.

At the afternoon session, a letter addressed to the Treasurer, from Mr. George Parmelee of Grand Traverse county, was read:

OLD MISSION, MICH., March 28, 1870.

DEAR SIR:—From a notice in the *Western Rural* of March 10, I learn that a State Pomological Society has been organized at Grand Rapids, and not knowing the postoffice address of the President, I send a line to you as a resident of the city, and likely to be present at the next meeting. But for the bad traveling just as our sleighing is leaving us, I would be present at the meeting on the first Tuesday in April.

If the first "articles of association," copied in the notice referred to, set forth mainly the objects of the Society, I will, if this reaches you in season and meets your views, ask you to suggest to the Society at its next meeting, the propriety of including among its objects the taking of measures to secure the aid of the State, more effectually than is now given, to the interests of Pomology. While we feel, and take pleasure in acknowledging, that the State has, through its Board of Agriculture done, and well done, much in the interests of knowledge in several branches, it must be apparent to all who understand the resources of the

Peninsular State, that Pomology, as a branch of agriculture, has not had that prominence given to it which its value and importance, both present and prospective, in justice require. While anything that may add to our taxes will, and should, be closely scrutinized, the intelligence of our citizens is certainly equal to appreciating the value and economy of reasonable expenditures in that direction, if practically applied. Just what steps will best accomplish the desired ends, the united wisdom of the Society can best point out.

The selection of Grand Rapids as a point to initiate a State organization seems eminently fit, for, while being nearly in the center of that interest, the more distant southeastern portions of the State enjoy facilities which render a few miles more of travel of little objection; and we in this other extreme section recognize the fact that we could not expect a selection that would be more convenient.

Yours truly,

GEORGE PARMELEE.

REMARKS ON THE CULTIVATION AND VARIETIES OF APPLES.

Members were solicited to describe their specimens of fruit in brief speeches. Mr. Ford said he had brought scions of English and Golden Russets. These apples were often confounded, when they were entirely different, as any one could see by looking at the scions. The Golden Russet limb is slim and light colored. Mr. F. also presented scions of the English Russet, which has a green and russet color. His English Russets were very hardy,—had kept them a year and a half. The English and Golden Russets were as different as the Baldwin and Spitzenburg. The English Russet grows upright and spreads; his soil was lightish. The value of the Russets was in their hardy keeping qualities. His Jonathans kept well; the chief value of this apple was that it was an annual and abundant bearer; there were always apples where there were Jonathan apple trees.

Rev. H. E. Waring made a statement of his fruit experience. He resides two miles east of the city, on elevated table land, possessing the naturally drained loamy elements most favorable to successful orcharding, and makes fruit a prominent feature of farming. Mr. W. ranks Steele's Red Winter, and Rhode Island Greening, among his most profitable sorts in full

bearing, but has a more extensive collection of varieties that have not yet borne in sufficient quantity to judge of their comparative merits. He also makes peaches a specialty, and says he has not failed of a crop for fifteen years, although there have been a few seasons when the yield was not more than one-half or one-third of a full one. He places the early and late Crawford, and Barnard, at the head. Finds yellow peaches sought after when the white-fleshed are a drug. Of the latter, the Large Early York, Stump the World, and Crockett's White, are favorites,—the latter was brought from New Jersey and matures the latest of the three. He has also paid some attention to both standard and dwarf pears. Among the latter, he says, the Louise Bonne de Jersey has paid twice as much as any other.

THE BALDWIN.

Mr. Thompson suggested that the difference in the color of the Baldwins upon the table was occasioned by a difference in soil.

Mr. Husted said the distinction was important. A variation in soil produces not only a difference in color, but also a corresponding variation in size, quality, and flavor. The Baldwin is one of the peculiar varieties which are materially changed by the variations of soil. There are low places that are rich and black, very cold in winter and very hot in summer; this soil produces a very inferior Baldwin. This apple does best on elevated situations, where the temperature is mostly uniform. He had watched the Baldwin for years in this State. There was an unusual variety of soil in Michigan, and the Baldwin succeeds remarkably well in some places, while in others it has been discarded. Hence a New England man coming here is often disappointed in the Baldwin.

Mr. Holt said the Baldwin did well with him until the severe winter of '56-'57, when they were all killed, though other varieties survived. Since then he had had no luck in raising young trees, but had done well in grafting the Baldwin

upon old stock. He had concluded that the Baldwin was not a hardy tree in all parts of Michigan. The Baldwin grafted on mature stocks will be the hardiest.

Mr. Congdon of Lowell asked wherein the superiority of the Baldwin was so apparent? A member suggested that it was in its size, color, good keeping and cooking qualities; it would always sell.

THE SWAAR.

Mr. Holt said the Swaar was a good keeper and good producer. He had always cultivated his orchard, and raised crops therefrom. He thought the Swaar did well on a gravelly soil.

Mr. Husted said his experience was that the Swaar was well adapted to gravelly and sandy soil; but on a clay soil he would discard it. On dry, light soil the Swaar will rival the Baldwin in beauty. The variation in soil produces a corresponding variation in flavor and keeping qualities of apples.

THE WAGENER.

Mr. Holt had the Wagener in his orchard, and was in favor of that apple. They bore at an early age, and he considered them one of the best of apples.

Mr. Husted confessed that he was enthusiastic on the subject of the Wagener. It had been suggested that it lacked constitution,—that it was an overbearer, and would soon wear out or use itself up. On the contrary, he knew of trees twelve or fourteen years old, and they bear annually, and good crops; there were no signs of decay; considered them a marvel of hardihood. He considered its cooking qualities as good as those of the Rhode Island Greening, and in this part of Michigan it is a hardier tree than the Baldwin or Greening.

THE SPITZENBURG AND RUSSET.

President Saunders said he had Spitzenburg trees, and they had prospered, and he considered it a very fine fruit,—not often excelled. His soil was a clay-loam. The specimens of Russet which he exhibited, and which were so generally

admired, were taken from trees bought for the Roxbury Russet.

Mr. Husted did not recommend the Spitzenburg for general culture, because, after bearing a few years, it fails to perfect the fruit on most of the soils of Michigan.

Mr. Holt said his Spitzenburg apples bore heavily every other year, and scattering alternate years, for the past twelve years. He thought well of them.

Mr. Houghtaling then proceeded to detail his experience in relation to the various fruits, as follows:

PEACHES.

In regard to raising peaches, I depend mainly upon seedlings, and have shipped from \$500 to \$700 worth in one season, from about 200 trees. The latter sum was realized two years ago. The last year, although the crop was good, there were too many in market, and the profits were very small. I have a good many varieties, and some that are excellent in quality. I have none as early as the Crawford, nor as showy as the Melancthon, but they are a nice yellow peach, and as good for all useful purposes. They are far more hardy than most budded peaches, and will yield many more to the tree as a rule.

PEARS.

Pear trees, with me, have proved a dead failure, having planted over one hundred and lost nearly all of them with the pear blight, and those trees that live do not grow nor flourish very well.

APPLES.

In reference to the best variety of apples, the speaker regarded the Baldwin as one of the very best, both as a good bearer, good keeper, and salable in market. The Red Canada and Spitzenburg come next. The Jonathan is also a very choice apple, but is rather small in size; but it is a good keeper, very showy, and of an excellent quality, as you will see by the specimens shown to-day. In regard to the keeping of

apples, I find that burying them out, like potatoes, is a good plan. Have about ten bushels this year buried out-doors that seem to be as fresh as when they came from the trees.

QUINCES.

Of quinces I have but few, and they do first rate for the chance they have. They bore well last year, and the fruit was large and nice. I give them a mulching of half-rotten straw occasionally, and once a year a good dose of salt, or old brine, about the roots; this keeps them healthy and free from blight, and makes the fruit large and sound. I think it is a very profitable fruit. I shipped one barrel last year over the lake and realized \$10 for it.

Henry S. Clubb inquired—Was the soil in which your pears failed rich or poor? Do you manure your pear trees?

Mr. Houghtaling replied—It was good strong, heavy soil, such as wheat and corn would grow well in, and pretty well manured.

Mr. Holt said that was the cause of the blight.

PRUNING.

Mr. Houghtaling said—May is the worst time for pruning. March is the best month, or June is good. The month of April is a good month in late seasons.

Mr. Holt liked pruning in March best. Mr. Houghtaling said, wax or gum shellac should be used to prevent bleeding.

The fruit on exhibition was referred to a committee, to report thereupon at the next meeting. The meeting then adjourned till the first Monday in May.

ADDRESS OF THE CORRESPONDING COMMITTEE.

GRAND HAVEN, April 9, 1870.

To the Pomologists of Michigan :

The State Pomological Society has been organized with a view to promote your interests.

In order to accomplish all its beneficent objects, the co-operation with the Society of fruit-growers in all parts of the State, either by personal attendance at its monthly meetings, or by correspondence, is absolutely necessary.

The Society desire to collect and publish such information in reference to every locality in the State, as may give to the outside world a correct idea of the extent and importance of the fruit interest, as well as a scientific view of the effects of locality, aspect, soil, water, and protection, on the varieties of fruit in improving or deteriorating certain kinds. For instance, at the favored locality of Spring Lake, in Ottawa county, it is believed that the Delaware grape is grown to greater perfection than in the Eastern States, being larger in berry and of superior flavor. There may be locations where the Baldwin apple attains greater perfection than at others, and other locations where it is inferior. Such information, carefully collected and published, will be of immense value to Pomology, and furnish scientific men of other States an opportunity of judging of the relative merits of Michigan as a fruit-producing State.

Fruit-growers of Michigan, co-operation and union will accomplish your interests far more than can ever be achieved by isolation. We have a Peninsula which stands unrivaled by any State in the Union for the production of choice, hardy

fruits to the greatest perfection. Not even California can compete with Michigan, in the quality of those fruits suited to this climate. We have, therefore, the basis of success, and if we take steps to avail ourselves of the advantages within our reach, Michigan, even when stripped of her wealth of lumber, will become a hundred fold more wealthy in her production of fruit.

In order to develop the fruit resources of our State, the first thing to do is to make known what has been accomplished. The experience of those who have been pioneers in fruit-growing is of the most importance, and to secure the publication of the results of that experience is one of the principal objects of the Society. The Committee, therefore, respectfully but earnestly invite the co-operation of every fruit-grower in the State.

Signed by the Corresponding Committee.

HENRY S. CLUBB, Grand Haven.

JAMES HAMILTON, Newaygo.

DANIEL UPTON, Muskegon.

MAY MEETING.

An important and interesting meeting of the Society was held on Tuesday, May 3, at the Circuit Court Room, at Grand Rapids. A valuable list of apples was adopted and recommended for the use and cultivation of orchardists and pomologists.

THE DISPLAY OF FRUIT.

Considering the advanced season of the year, the exhibition of apples was very creditable. Mr. Walter G. Sinclair of Spring Lake, Ottawa county, presented some bright specimens

of the Baldwin. They were placed on the shelves of his cellar when gathered, with all his other varieties, and no other care was bestowed upon them. Large, brown, sound-looking Baldwins were presented by Mr. Joshua Bradish of Grand Rapids town; grown on clay soil. Ionia county was represented by bright-looking Baldwins, sent by George N. Jackson of the township of Keene; raised on gravelly loam. When gathered they were buried under straw and covered with soil. The town of Cascade, Kent county, was represented by bright red Baldwins, from the farm of President Saunders. Other specimens were presented by H. Holt of Cascade. A plate of large, fresh-looking Rhode Island Greenings was exhibited by Noah P. Husted of Lowell. The Russet family were gathered together in friendly accord and rivalry. The smallest was the American Golden Russet, or Bullock's Pippin, sometimes called the Sheepnose; the largest and finest were those presented by Dr. Saunders. Samples of the Golden Russet, the Roxbury Russet, and the English Russet were presented by Mr. Husted, Mr. Van Buren, Mr. Holt, and others. Mr. Holt's samples of the Swaar were very large, handsome, and sound. His Wagener, Holt's Seedling, Esopus Spitzenburg, Jonathan, Yellow Bellflower, Green Winter Sweet, and Rambo all attracted attention.

The Corresponding Secretary read a number of letters from gentlemen residing in different parts of the State—among others was one from Mr. Goodwin of Ionia:

LETTER FROM H. H. GOODWIN OF IONIA.

IONIA, April 30, 1870.

DEAR SIR:—Feeling a deep interest in the fruit culture of our great fruit State, I inclose the membership fee, and instruct you to put my name to the constitution of the Society. I have an orchard of 400 apple trees just coming into bearing; the soil is mostly of clayey loam, and the trees are promising well, but the Wagener has gone beyond the promising point, and for two years has been paying down for all it received, and canceling the old score of purchase price and care which I had charged against it. From the 25 Wageners that I have, I expect to pick more fruit for the next five years, than from all the other varieties

in the orchard. The long season of use, and the peffect satisfaction rendered when used either as a dessert fruit or a cooking apple, make it the most desirable of any with which I am acquainted.

Success to the Society, and continued advancement to the great interests that called it into being.

H. H. GOODWIN.

GRAFTING..

Mr. Houghtaling said the subject of grafting is a thing very little understood, and very many people know nothing at all how it should be done. There are thousands of trees in the country that need to be grafted over to make them worth the ground they occupy, or profitable to their owners. It is just as easy to raise the best fruit as it is the poorest. I have found by experience that it is very easy to put a new top on an apple tree even after it is fifteen or twenty years old. I have some in my orchard that were large enough to bear ten bushels of apples before they were grafted, and now have a new top and as handsome as any tree in the orchard. There is a right way to do it; it is very easy to spoil the shape and beauty of the tree. For this reason I have brought along a few specimens for illustration, that I may show you something of the right and wrong way to success in the art of grafting.

First. We should cut the limbs out as far from the tree as we can, to keep the top open and well spread out. *Second.* It should all be done at one time, that the top may make an even growth and be well balanced. *Third.* They should be watched and attended to, keeping away all the suckers that take the growth away from the graft, and sometimes kill them out entirely, as here shown by specimen.

Mr. Houghtaling here exhibited the *modus operandi* of grafting, in a very interesting manner.

REPORT OF THE COMMITTEE ON APPLES.

The committee to whom was referred the apples on exhibition at the April meeting, reported by their Chairman, William Voorhies of Frankfort, Grand Traverse county:

Mr. President and Gentlemen:

We will make two classes of apples, those planted for *individual use* and those planted *for market* or shipping purposes. For the grower's own use we recommend the following varieties:

For Summer Use—Early Harvest, Early Strawberry, Williams' Favorite, Red Astrachan.

For Autumn—Porter, Jersey Sweet, Maiden's Blush, Gravenstein, Rambo.

For Winter—Baldwin, Steele's Red Winter, Wagener, Rhode Island Greening, Swaar, Esopus Spitzenburg, Peck's Pleasant, Tallman Sweeting.

For Market Purposes—Steele's Red, Baldwin, Rhode Island Greening, and Wagener, the red predominating, as they generally sell the best, though the Greening sells full as well. The Wagener is a comparatively new apple, and is not very well known, but receives high commendation from all quarters. The best apple for market should combine the following qualities: The tree should be hardy,—do well on any moderately fertile soil, and should be long-lived, free from disease, and an annual bearer. The fruit should be of good size, not too large or too small, skin thick (to bear handling), red or bright, lively color, flesh fine grained, tender, crisp, sub-acid in flavor. The apple should hang well on the tree, bear early, fruit without spots. Fruit should be in good condition for eating from December until May. An apple with all the above qualifications can hardly be found. Get one as nearly like it as possible. Such an apple will pay the best.

In regard to the Wagener apple presented by Mr. Husted, the sample before us is light red, indistinctly striped and splashed with dark red, stem inserted in a deep cavity, calyx nearly closed and set in a rather shallow basin, juicy, sound to the core (April 12th), flesh white, somewhat tough, skin tough, mild sub-acid flavor. Judging by this sample the Wagener is certainly a good keeper.

Holt's Seedling, presented by Mr. Holt, very much resembles the Swaar in appearance, is mild, sub-acid bordering on sweetness; rather dry and very fine-grained; at this season (April 12th), is in a partial state of decay at the core. On account of the flavor, we do not anticipate this seedling will be valuable for cooking purposes; yet its hardness and prolific bearing are valuable characteristics, and would undoubtedly be conveyed to the next generation of seedlings, which, if some could be obtained that had a more decided flavor combined with the good qualities already possessed by the parent, would undoubtedly prove an acquisition. Will Mr. Holt try again?

DISCUSSION OF THE REPORT.

The report was accepted and the question was on its adoption. Mr. Holt, one of the committee, said he did not agree with all there was in the report; thought the Swaar should be placed on the list of shipping apples,—it always sells well. Mr. Linderman, another of the committee, thought the report recommended too many varieties.

SUMMER APPLES.

Mr. Husted agreed that there were too many varieties, and he had often felt the annoyance and vexation in filling the long lists of customers. Mr. Holt could not help but recommend the Williams' Favorite as a summer variety,—it was the earliest and very thrifty. That and the Red Astrachan could not be ignored. A member suggested that the Early Harvest be added. Rev. Mr. Hamilton said the Early Harvest would scab and crack. The Red Astrachan was his favorite summer variety the world over.

Mr. Husted would add the Duchess of Oldenberg as the coming summer variety. Its superiority was unquestioned. It was tough, hardy, and is coming on at a great rate. By vote it was added to the list. So was the Sweet Bough. Mr. Holt thought the Red Astrachan was a little tender, and the

Duchess of Oldenberg was an autumn apple. Mr. Husted said they covered the summer season,—were good for all purposes, for dessert, cooking, and market. It was now moved that all summer varieties recommended be stricken from the list except the Red Astrachan, Duchess of Oldenberg, and Sweet Bough. Carried.

AUTUMN APPLES.

Rev. Mr. Hamilton of Newaygo highly commended the Maiden's Blush; it could not be dispensed with. It headed the list for autumn, as the Red Astrachan did for summer. He spoke highly of the Gravenstein.

Mr. Husted said the Maiden's Blush was a beautiful apple, always sold readily, saw it retailed last season, in Chicago, at five cents an apple. The Gravenstein was beautiful, a fine grower, but in its place he would substitute the Cayuga Red Streak. It was a splendid apple. Mr. Holt had the Maiden's Blush in his orchard; it was a great producer.

Mr. Linderman felt a little delicate about recommending the Snow; he had known it to crack.

Mr. Schermerhorn suggested that the Fall Pippin be added to the list. It was an old variety and very popular. People would be surprised to see it left out.

Major Light of Greenville said he should strongly indorse the Snow; had known it from his youth; it was a great success in Ionia, Kent, and Montcalm counties. Never knew a man to reject it. One good characteristic of the Maiden's Blush was that it would dry well; so would the Snow; this is a valuable qualification for a fall variety. Every list should have a sweet apple; the Jersey Sweet was not excelled. The Cayuga Red Streak, Maiden's Blush, and Snow would keep to spring.

Mr. Holt didn't know how to leave out the Porter. On motion, all the varieties recommended by the committee were stricken out, and the following substituted for autumn varieties: Maiden's Blush, Snow, Jersey Sweet, Cayuga Red Streak, Fall Pippin.

WINTER APPLES.

Mr. Holt said that Peck's Pleasant, in his experience, was not a long keeper. Mr. Linderman said it was his favorite.

Mr. Hamilton said he had the Northern Spy in all its perfection.

Major Light said the Tompkins County King does not succeed in a sandy-loam soil; on a clay loam it was a success and a splendid apple.

Mr. Carrier said his Baldwins had not ripened the last season.

Mr. Hamilton—To throw out the Baldwin would put the State in an uproar.

Mr. Husted—The Baldwin and Greening cannot be dropped.

Mr. Hamilton—As this was a list for general cultivation as well as for the market, they had better enlarge it. He suggested the Golden Russet, the Baldwin, Greening, Wagener, Hubbardston Nonsuch, Northern Spy, and Tompkins County King.

Mr. Light—I have a list of seven apples. The Baldwin cannot be stricken out; the Wagener is a coming apple,—uniform good bearer and a valuable variety. The Greening was one of the best cooking apples. The Northern Spy does not mature early, but when it comes it sells, and is a great bearer. The Hubbardston Nonsuch was a great favorite. We have a great variety of soil in Michigan. He recognized Steele's Red as valuable in certain localities; nothing could be said against the fruit, but the tree was hard to start. We can substitute the Wagener in its place and get a better apple. Some very fine things could be said in favor of the Swaar, but it is not a constant bearer. The Spitzenburg of fine flavor was liable to fail; Peck's Pleasant, so fine, was too large, but a good grower; the Jonathan was too small. On his motion, this list was adopted for winter varieties: Baldwin, Wagener, Rhode Island Greening, Golden Russet, Tallman Sweeting, Northern Spy, and Hubbardston Nonsuch.

The report of the committee, as amended, was then adopted.

THE APPLES RECOMMENDED BY THE SOCIETY.

It will thus be seen that the Society, by their action, recommend the following varieties :

For Summer :—The Red Astrachan, Duchess of Oldenberg, and Sweet Bough.

For Autumn :—The Maiden's Blush, Snow or Fameuse, Jersey Sweet, Cayuga Red Streak, and Fall Pippin.

For Winter :—The Baldwin, Wagener, Rhode Island Greening, Golden Russet, Tallman Sweeting, Northern Spy, and Hubbardston Nonsuch.

After listening to an address by J. P. Thompson, the Society adjourned.

OUR ORCHARD SYSTEM.

THE NEED OF CONCENTRATION—WANTED, FEWER KINDS AND
SORTS—THE LEATHER-JACKET CLASS.

ADDRESS BY J. P. THOMPSON.

Mr. President and Gentlemen of the State Pomological Society :

In contemplating the Apple Culture of the famous Fruit Belt of Western Michigan, the characteristics are so well defined that they will not escape the attention of the most casual observer, and these are :

1. The total absence of *system* ;
 2. The want of a correct and authoritative *nomenclature* ;
- and,
3. The lack of a well defined *purpose*.

The system appears to be to plant a great variety of trees without regard to soil or climate, or intended use ; the nomenclature comes from provincial traditions, and is derived from Northern, Southern, Eastern, and Western associations ; and the purpose seems to be undefined and vague, partly experimental, but mainly to raise as many as possible of all kinds and sorts. Every apple culturist, in a certain sense, appears to be an amateur ; he goes into the business hap-hazard to suit himself, without due regard to the demands of the market, and with no well conceived calculations about profit or utility. Now *amateurs* are well enough in their places ; they serve oftentimes a valuable purpose ; are useful as well as ornamental ; but to be a successful amateur requires leisure and capital, as well as taste and cultivation. Men who settle a new country and lay deep the foundations of a profitable

and intelligent fruit husbandry, have little time to waste in experiments; they need most to come directly to the utility and profit of the business in hand.

Calculate, if you can, the value of the time and the amount of money foolishly expended in tree culture, for the last twenty years, in Western Michigan! It would amount to tens of thousands of dollars; and where, to-day, we have a few valuable orchards, we ought to have the land covered with productive, fruit-bearing varieties, sufficient to support every man, woman, and child in the section alluded to. There has been a great lack of skill and knowledge—a want of a well matured purpose. But let us not be too harsh in our judgments.

WHY THIS GREAT DIVERSITY?

It is very easy to account for this great diversity and indirectness in our fruit culture. Men have come from Northern and Southern Ohio, totally unlike our latitude; many have come from the hardy clime of Canada; a large swarm are here from New England, who, true to their nature, brought with them all their New England prejudices; a great mass are from Northern and Southern New York; Pennsylvania and New Jersey have sent their share, and other sections theirs; so that we are a mixed multitude, and every man has sought to bring his old favorite apple tree with him! Every one has fondly desired to transplant from his old homestead the apple tree of his boyhood days, and has endeavored to perpetuate those sorts and kinds that gave a glow and cheer to the hearthstone of his sires. It is not a weakness, and is no disgrace, to love the fruits, the trees, the flowers, the birds, that blossomed, bloomed, and sung on the old homesteads. It could not be expected that men would know in advance; it was all they could do to bring the knowledge of their sections with them. Certain it is, however, that every clime, every latitude, has its own peculiar favorite fruit; certain it is that Northern and Southern Ohio are unlike in their productions;

but few of the apples of New England flourish in New Jersey or Pennsylvania; while it is also certain that there are species in Western New York, under the lee of the lakes, which succeed well in Western Michigan under the protective influences of our inland seas.

TOO MANY VARIETIES.

So that it is true, as I have said, that the misfortune with which we are most afflicted is the misfortune of too many kinds. We are smothered, overburdened, crushed, with apples, such as they are! Practical men need to go to pruning with the axe. Let the amateur have all he wants, but let the pomologists, who have homes, schools, and churches to provide for, get down to business! With peaches we are doing better,—we have a *repertoire*, a system, and a nomenclature.

There are three kinds of peaches—the Early Hale and the two Crawfords—that are bound to add thousands of dollars to the productive wealth of the fruit belt. What if, ten or fifteen years ago, our peach orchards could have been planted with those kinds? Men who are toiling could now have lived at their ease with their Crawfords. “Yes,” say this and that neighbor, “it would have been dollars in our pockets, and wealth to these counties and towns.” But six hundred different kinds of peaches are recommended, and we have only three leading varieties,—not over six at most,—and are doing well. Let the amateur have his six hundred kinds, and we will stick to the three kinds, and have orchards. We cannot all be amateurs. Here is the lesson the peach teaches the apple. We want this *system* introduced into our apple-culture,—we want our six kinds of best market varieties.

DECLINE OF ORCHARD CROPS IN OHIO.

In Ohio they are talking about the decline of orchard crops. The apple crops in Ohio and the adjoining States have very materially declined, in quantity and quality, for some years past, especially where the orchards are in considerable age,

but the evil is not attributed to the age of the trees nor the exhaustion of the soil, so much as to the increase of injurious insects and diseases affecting fruits and fruit trees. 'This is a doleful sound to come from that grand pomological State.

Not to weary your patience, I wish to read from the report of their State Horticultural Society.

The Ohio Horticultural Society have given much attention to this matter for the past two years, and have called the attention of the State Legislature to the subject in the following memorial:

"To the Legislature of Ohio:

"The undersigned, Executive Committee of the Ohio Horticultural Society, respectfully invite the attention of the members of the Legislature to the following facts and considerations relating to the orchard crop of the State for 1868:

Bushels of apples produced.....	11,637,515
Bushels of peaches produced.....	599,499
Bushels of pears produced.....	66,712
Total.....	12,303,726
<hr/>	
If the apples were of fair average quality, they might be estimated as worth	
50 cents per bushel.....	\$5,818,757
The peaches \$1.50 per bushel.....	899,248
The pears same price.....	100,063
Total value of orchard crop.....	\$6,818,073
<hr/>	

"If we add a moderate estimate for the thousands of gardens and door-yards partly occupied with fruit trees and omitted by the assessors, it will swell the aggregate of orchards to nearly 500,000 acres, and the value of the products to over \$7,000,000—saying nothing of the cherries, grapes, and smaller fruits.

"Large as this sum appears, we are convinced, by much observation and inquiry, that the amount and value of the orchard products of the State have diminished very greatly within the past ten or fifteen years.

"The report also shows that while part of the evil may be

attributed to neglect or bad management, the chief causes are injurious insects and fungus diseases. Both of these have increased greatly in variety and extent within the past ten or fifteen years, and seem likely to increase still more in the future, as our orchards and gardens increase in age, unless measures are taken to prevent such result."

THE REASON OF THIS DECLINE.

My own opinion about this decline is that they have too many kinds and sorts in Ohio. If they would thin out one-half, the deterioration would itself decline. There is nothing like useless varieties to breed poisonous insects,—pestiferous bugs and destructive borers. A tree of but little value attracts but little attention, and it is very likely to draw on these pests and communicate them to more valuable kinds. Thin out your orchards; revise your catalogues; reduce the number of your kinds one-half; is our humble advice to the orchardists of Ohio.

This, it appears to us, is the lesson for Western Michigan. One-half of the trees in this section should be grafted. A useless tree cumbereth the ground. It costs just as much to feed it; it exhausts the earth and the air just as much as does a good tree. Time, precious time,—half a lifetime,—is lost. The loss is not only to the soil, but to the pockets of the producer. For what is an apple worth that won't sell?

THE BEST KINDS.

Now comes the question, what are the best market varieties for this section, for our soil and climate? The market gives this answer; the *market* affords the best test. If a bushel of Northern Spys will bring a dollar, that is a test of value. "Steele's Red" is quoted in the *Western Rural*, April 28, at \$3 50@3 75 per barrel in Detroit. That's a good criterion of its value in that market. The *Country Gentleman* reports the Rhode Island Greening worth \$4 50 per barrel in Albany, and recently barrels of them sold quick at \$2 50 in this city.

Here it is, in the market we find the test of value. There are 2,500 varieties of apples,—wanted, six of the best varieties! That is the question, and this is the policy. In Western New York they have partly learned to do the business better than we do. Their orchards are not filled with unsalable varieties. There they have established the kinds most profitable for the markets, and they raise and sell those kinds—tens of thousands of bushels.

THE QUESTION IN A NUTSHELL.

To sum it up: In looking over this vast field spread before us by a bountiful Providence, it has seemed to me that the one great mistake that has been made by those who raise fruit for the market, is the planting of too many sorts. If this Pomological Society could give to this people a small and carefully considered list, sanctioned by trial and experience, it would confer a benefit that would well repay for its institution. In looking for a few of the best varieties my attention was drawn to the

RUSSET FAMILY.

I know, practically, little about the Russet Family, but from the numerous names of its members, it must be a decidedly mixed family.

THE RUSSET NOMENCLATURE.

We have the Pumpkin Russet, which is distinct from the Sweet Russet and more worthless; American Golden Russet, or Bullock's Pippin, or Sheepnose—too small to be popular or useful; English or Poughkeepsie Russet—a profuse bearer—will keep twelve months; Golden Russet, known favorably as the Golden Russet of Western New York—distinct from the American Golden Russet or Bullock's Pippin—valuable; Red Russet, somewhat resembling the Baldwin, described by C. Downing, but not recommended; the Roxbury Russet or Boston Russet—sometimes called the Putnam Russet in Ohio—keeps late in spring—valuable; Bagby Russet or Egyptian Russet—in use in Illinois but not in Michigan; Cheseborough

Russet, an autumn variety of little value; Darlington Russet, very moderate quality; Fay's Russet, known in Vermont; Goble Russet, an autumn variety of no value; Howe's Russet, closely resembling the Roxbury; Hunt's Russet, another Massachusetts Russet; Kingsbury Russet, identical with the Cheseborough; Spice Russet, no account; Sweet Golden Russet, no account; Whitney's Russet, a Canada variety; Winn's Russet, a Maine sort; York Russet, similar to the Pumpkin Russet; the Perry Russet and the Pommegrise or Gray Russet—not recommended. Downing has an English Golden Russet, inferior. Of all these sorts, but three are worth talking about—the Golden, the English, and the Roxbury. If all others were discarded, the pomological world would not know the loss. It cannot be said that this family lacks for a nomenclature,—it has any quantity of it. But hereafter let us be particular and not talk about the English Golden Russet or the American Golden Russet, but let us call the apple we mean, the Golden Russet—its proper name.

THE RESPECTABLE RUSSETS.

The Roxbury Russet was a prominent apple before the Baldwin was known in New England. Roxbury, now a part of Boston, was its birthplace, and it is consequently also correctly known as the Boston Russet. President Wilder of Massachusetts says: "It is a singular fact, that the three most popular Eastern apples—the Baldwin, the Roxbury Russet, and the Rhode Island Greening—are the three most popular apples in the West, where they grow so many millions of bushels. At many of the Western fruit conventions, votes have been taken as to what were the best varieties, and they have always resulted in favor of the Baldwin, the Roxbury Russet, and the Rhode Island Greening."

President J. F. C. Hyde of Massachusetts says: "If we were asked to name varieties for market use, we should give the Williams, if a summer variety is desired; the Dutch Codlin, for cooking, the Gravenstein, Hubbardston Nonsuch,

Rhode Island Greening, Baldwin, and for late keeping, the Roxbury Russet, which, though not a great, yet is a regular or annual bearer."

It is a somewhat curious incident in pomological literature, that the late Mr. Downing, in his "Fruits and Fruit Trees of America,"—edition of 1852,—recommended, as particularly favorable, what he called the "Putnam Russet." He says: "For a knowledge of this celebrated Western apple we are indebted to that zealous pomologist, our friend, Professor Kirtland of Cleveland. It is considered decidedly the most valuable late-keeping apple in the West—not inferior to the Newtown Pippin, and the growth of the tree is very luxuriant. It originated at Marietta, Ohio, and is largely grown for the New Orleans and West India markets." This apple was recognized and ascertained to be identical with the Roxbury Russet, and in later editions Downing so refers to it. It came to be called the Putnam Russet from the fact that it was taken to the Ohio Valley in 1796, by Rufus Putnam, and from thence it was distributed over the Southwest.

A vote of the Fruit-growers' Society of Western New York gave the following as the best six varieties for that section: Baldwin, Tompkins County King, Golden Russet of Western New York, Roxbury Russet, Rhode Island Greening, and the Northern Spy. It will be seen that the Russet family occupies one-third of this vote. It will also be seen that this apple (the Roxbury) has the preference in the East, in Ohio, and in Western New York, as one of the best of long-keepers.

Gentlemen, I suppose you will expect a more minute description, and I do not wish to exhaust your patience. I submit the following, which has been well matured, but yet may fail in accuracy. The varieties are very similar. It requires a close observer, in this section, to distinguish them. Oftentimes it is only by the shoots that they can be classified. As has been said, the Roxbury Russet originated in New England, and has been extensively distributed throughout the

West. It is a good annual bearer, best on heavy soils, and in many localities the most popular of this species, attributable to its thick skin, and keeping qualities, enabling it to be taken long distances, often to New Orleans and other Southern markets, but is hardly above second rate in quality. The tree is of spreading growth, with rather downy shoots. Fruit, medium to large, roundish, flattened, dull green, overspread with brownish, yellow russet, occasionally a faint blush on the sunny side; flesh greenish white, moderately juicy, mild sub-acid, good for market from January to June. Has been known to keep a year.

The English Russet is supposed to be an American seedling, was first disseminated on the Hudson River, is equally as long a keeper as the above, of less acid and more pleasant flavor. The growth of the tree is upright, with shoots of a lively brown color. Fruit medium size, roundish, conical, or ovate, light greenish yellow, mostly overspread with brownish russet, in large exposed specimens wholly russeted, flesh yellowish, white fine texture, rather firm, aromatic. Its profuse bearing, and quality of keeping over a year, render it very profitable.

The Golden Russet, an apple of foreign origin, and is extensively planted in Western New York, and resembles the English Russet in size and general appearance, but is more tender and crisp, and is not so long a keeper. Growth, spreading and irregular, with many slender weeping branches; has light-colored, speckled shoots, by which it is easily known; fruit medium sized, roundish, usually a little oblong, sometimes slightly flattened; surface at times wholly a thick russet, at others a thin, broken russet on a greenish yellow skin, sometimes a tinge of red on the exposed side; flesh greenish, fine-grained, high-flavored, nearly "best," keeps through winter.

The English is distinguished from the Golden and Roxbury by its straight, upright shoots, and from the Roxbury by its less flat form, and less acid flavor, while the Golden may be

most readily known from its peculiar light shoots and its brisk rich flavor.

CONCLUSION.

GENTLEMEN—I have thus given you my opinion about the apple orcharding in this section. I have not aimed to be sentimental, learned, or nice, but have endeavored to present a practical question in a practical manner. I am convinced that until some of these suggestions are adopted, our apple orcharding will not amount to much. We want concentration of varieties. I want to hear of and see an orchard of one thousand Wagener apples; another one of five hundred Baldwins; another one of five hundred Rhode Island Greenings; another one of two hundred Red Astrachans; one of two hundred Red Canada, or Steele's Red; one of three hundred Maiden's Blush, or an equal number of the Fall Pippin; another one of two hundred Tompkins County King; another one of a thousand of the Roxbury, or Golden or English Russet, and one of five hundred Snow. When such orchards are established, fruit buyers will be attracted here, and it will not be necessary for any man to "peddle" apples from his orchard. I would not advise that over ten varieties be cultivated in the Fruit Belt, and would not recommend any one man to cultivate more than two summer varieties, two fall or autumn kinds, and not over three winter sorts. Indeed, I am convinced that three varieties would be better for one orchard than a larger number. The demand is for marketable apples, apples that will bear transport, and apples that will keep. What is known as the Fruit Belt ought very soon to produce and market half a million bushels of apples per annum. It can be done by systematized orcharding.

POPULAR VARIETIES OF HARDY APPLES.

DESCRIPTION AND REVIEW OF THE FIFTEEN VARIETIES OF APPLES
RECOMMENDED BY THE STATE POMOLOGICAL SOCIETY, BY W. L.
WARING; READ BEFORE THE SOCIETY, JUNE 7TH, 1870.

In preparing the following descriptions of popular hardy apples, comprising the sorts recommended for general orchard culture in the State, at a late session of the State Pomological Society, the writer has been guided by personal experience, observation, and the suggestions and views of practical fruit-growers and intelligent pomologists. It is designed to furnish an outline of the most prominent distinguishing features of these leading market fruits, with brief notes that may be useful or interesting. A minute description of old, well-known kinds is not deemed necessary, as reference can always be made to standard works. The following terms used in describing apples, oblate—flat; ovate—egg-shaped; round—globular; conical, oblong, ribbed, etc., are such as are commonly accepted and generally understood.

SUMMER APPLES.

Red Astrachan.—Rather large, sometimes quite large, roundish-flattened, slightly approaching conical, nearly whole surface brilliant deep crimson, overspread with a thick white bloom; flesh white, crisp, juicy, rather acid. Excellent for cooking, and, when fully ripe, an agreeable dessert fruit. Ripens from the 20th of July to the middle of August,—a few days after the early harvest,—and should be picked before fully mature. Shoots stout, clear reddish chestnut, with many white specks; leaves broad. The tree is a vigorous, upright, regular grower, forming a very handsome head, and apparently adapting itself to all soils and locations.

It comes early into bearing, and bears annually a fruit

always fair, good for eating, and of excellent culinary qualities; so beautiful, and bearing carriage so well, as to make it worthy for general cultivation, and especially desirable for marketing purposes. Hardy north and west. First imported into England from Sweden in 1816.

Sweet Bough.—Large, roundish, remotely conical-ovate; sometimes distinctly conical; skin smooth, pale greenish yellow, becoming yellow when fully ripe; flesh white, tender, crisp, sprightly, with an excellent sweet flavor. Ripens from the middle of July to the tenth of August. The Sweet Bough, or Yellow Bough as it is often called, is a native apple, and a popular sort everywhere, highly valued for dessert and much esteemed for baking. Shoots yellowish; tree hardy, a somewhat irregular, upright, spreading, moderate, compact grower, forming a good round head, and an abundant annual bearer. It is not as desirable for the kitchen as the Red Astrachan, but is generally greatly admired for the table; very valuable for market purposes, and should be in every collection.

Duchess of Oldenberg.—Rather large, roundish, a little flattened at the ends, skin smooth, finely washed with light red in broad broken stripes and splashes on a golden or yellow ground, with a faint blue bloom; very handsome; flesh yellowish white, tender, juicy, sub-acid, with an excellent flavor; first-rate for cooking, and a pleasant dessert fruit. Ripens early in September. Very hardy, and a young and abundant bearer. The strong growth of the tree, its early bearing, and endurance of severe winters, and the fair and showy appearance of fruit, render it one of the most valuable sorts for the West.

So much is it prized by many who have grown it, that they think it surpasses most all early autumn apples. Of Russian origin.

REMARKS.

These three varieties are all hardy, and, according to general experience, are among the best and most profitable for the

Northwest, covering nearly the whole period of summer, keeping up a supply of good apples from about the time of wheat harvest to early September, and some practical fruit-growers plant nine of them to any other early sorts.

The Duchess of Oldenberg, however, is more properly an autumn variety, and I would suggest as a substitute the Carolina Red June as the most valuable. Very early market apple; above medium in size; ripens among the earliest in July, and keeps long after ripe; is hardy, vigorous, and a young, abundant, regular bearer.

The Williams, a rather large, handsome, good fruit, in season for several weeks late in summer, would be preferred but for its later ripening. Or the Keswick Codlin for cooking, and tolerable for eating, if quantity of fair fruit is more desired than a high standard of quality.

AUTUMN APPLES.

Maiden's Blush.—Rather large, oblate or flat, skin thin, smooth and fair, clear lemon yellow, with red cheeks, varying from a delicately tinted flush to a rich, brilliant crimson; remarkably beautiful; flesh white, fine grained, tender, sprightly, pleasant, rather sharp sub-acid unless fully ripened; begins to ripen at the end of August and until the last of October; will keep through winter.

It is much admired as a dessert fruit, and is also highly esteemed for cooking or drying,

The tree is a rapid grower, forming a fine round, spreading head, and bears annually large crops. Hardy, valuable at the West.

Although not highly flavored, it is greatly valued for its fair, tender, and beautiful fruit, and uniform productiveness. A native of New Jersey, first described by Cox.

Snow Apple.—Medium in size, round, often oblate, or somewhat flattened; surface even, handsomely striped and blotched with fine deep red on whitish ground; where much exposed to the sun, becoming nearly a uniform rich dark crimson

Flesh very white, tender, juicy, sub-acid, slightly perfumed, delicious.

Late autumn, at the North in use from October to February. Not very rich, but much admired as a dessert fruit, for its handsome appearance and exceedingly pleasant, refreshing flavor, and is regarded as excellent for drying. Shoots, dark, diverging. Tree a vigorous grower and regular bearer. A celebrated, hardy, productive apple, especially valuable far north.

Originated in Canada, and has its name, *Pomme de Neige*, or *Snow Apple*, from the snow-white color of its flesh.

Jersey Sweet.—Fruit medium size, round-ovate, often oblong-ovate, thickly washed and striped with fine red on greenish yellow, sometimes entirely covered with pale or deep red; flesh whitish, fine grained, exceedingly juicy, tender, sweet, and sprightly. Its good flavor and remarkably rich sweet make it popular for table use, and especially suited for baking. Owing to its saccharine quality, it is largely planted throughout the Middle States for the fattening of stock. Commences maturing the end of August, and continues ripening till mid-autumn. Young shoots, stout and short jointed; tree a strong, fine grower, and a profuse annual bearer; are incorrectly said to bear themselves out early. A very valuable sort, succeeding in all localities, and highly esteemed in almost all parts of the country, both for market and for uses about the homestead. First disseminated in New Jersey.

Cayuga Red Streak.—Very large, roundish, remotely conical, surface slightly uneven, sometimes smooth; splashed with stripes of rich purplish red, on greenish-yellow or yellowish-white ground; flesh coarse grained, with a sprightly, sub-acid, pleasant, but not rich flavor; of fair eating quality, and excellent for baking. Late autumn and early winter. An upright, compact grower; a fine, regular, annual bearer, growth in large trees becoming straggling. One of the best very large apples.—showy, fair, productive, and profitable.

Though not high flavored, its remarkably handsome appearance and large size render it one of the most popular fruits in market. Origin, Western New York.

Fall Pippin.—Fruit very large, roundish, approaching oblong-conical, flattened at the ends, sometimes with obscure ribs; color greenish, becoming a high, rich yellow when ripe, with often a tinge of brownish blush on one side when grown in good soil and well exposed to the sun. Flesh yellowish-white, quite tender and juicy, with a rich, sub-acid, aromatic flavor. Is esteemed everywhere as the first of autumn apples, from its beauty, large size, and delicious flavor, for the table or cooking. Season, October to January.

Shoots, dark; tree vigorous, spreading, becoming large. In strong clay loams it is one of the very best, hardy, and a good bearer. Fine in nearly all localities. Origin uncertain, supposed to be an American seedling, raised from the Holland Pippin, from which it differs most strongly in its later keeping.

REMARKS.

The list of autumn apples embraces a sufficient variety that have been well tested and approved throughout the State for general good qualities, and such as are commonly admitted to rank among the most hardy and profitable.

It would be a larger number than necessary, if grown strictly for market, were it not for the fact that they not only supply the whole fall season, but a majority of them continue in use nearly through winter.

There are some who would substitute for one of these, the Lowell, here called Greasy Pippin, a rival of the Fall Pippin, which, although hardly as good in quality, excels that variety in its uniform fair surface, and great and early productiveness.

WINTER APPLES.

Baldwin.—Large, roundish, tapering a little toward the eye, nearly covered and striped with crimson, red, and orange, on yellow ground: on light loams well exposed to the sun, a

beautiful bright red; a few russet dots and russet streaks about the stem; flesh yellowish white, crisp, with a rich sub-acid flavor, not very fine grained. A first-rate winter apple in all respects. Ripens through winter, but keeps well later. Shoots, reddish, stout, slightly downy, long jointed, with white specks; tree a vigorous, rapid grower, with curved erect branches; forms a regular open head in the orchard; comes early to maturity and bears abundantly; in strong soils supplied with lime and potash, produces very even, perfect, and uniform-sized fruit. It is the most popular winter sort throughout New England, New York, and Michigan, and as a profitable market variety, stands among the very first. Originated in Massachusetts.

Wagener—Above medium to large, round-ovate, sometimes oblate, flattened at the ends, outline somewhat irregular, slightly ribbed, skin smooth, mostly overspread with indistinct stripes of two shades of red; full deep red in the sun, pale light red on the shady side, on warm yellow ground; often streaked with russet; flesh whitish, fine grained, compact, mild sub-acid, vinous, aromatic, excellent. A celebrated variety, and one of the finest for dessert, cooking, or market. Ripens through winter, but a late keeper, retaining its freshness of flavor and appearance till May, and superior for culinary uses at the beginning of autumn.

Tree a stout, upright, rapid grower, becoming spreading; very hardy; exceedingly productive when quite young; a heavy annual bearer, and esteemed by many intelligent market-growers, especially in Western Michigan, as the most valuable winter apple yet introduced. In quality, as a table apple, marked as best. A native of Yates County, New York. First brought into notice in 1848.

Rhode Island Greening—Large, roundish, flattened, sometimes angular, always fair, green, yellowish when fully matured, a brownish blush on sun-grown specimens, many rough russet dots and patches; flesh yellowish, tender, slightly aromatic,

with a lively acid juice; as excellent for dessert as for cooking, and its presence in orchard or garden, for kitchen or table use, cannot be dispensed with. Keeps well till March or April. Growth strong, of a broad-spreading habit, healthy, medium-sized shoots, broad leaves; a great and constant annual bearer in nearly all soils and situations, and is more generally known and esteemed than any other winter sort; single trees yielding forty bushels of fair fruit in favorable years, and neglected orchards 200 bushels per acre. Like the Fall Pippin, which it resembles in wood and leaves, and all trees of the same vigorous habit, it is a gross feeder, and should be supplied with fertilizers by turning in heavy crops of clover or dressings of compost, where there is any deficiency in the soil.

Fine throughout the Northern States. Is said to be a native of New Jersey, once known as the Jersey Greening; was first widely distributed in Rhode Island and adjacent region.

Golden Russet—Medium size, roundish-conical, a little oblong, flattened at stem end, nearly regular; skin rough and thick, sometimes wholly a dull russet, and at others a thin broken russet on a greenish-yellow ground, rarely with a tinge of red on the exposed side; flesh greenish, fine grained, firm, crisp, juicy and high-flavored, nearly "best." Season, November to May. Popular and extensively grown in the Genesee Valley, where it is known as the Golden Russet of Western New York, and considered here, from its productiveness and superior keeping and eating qualities, the most valuable of all the Russets.

Tree hardy, a fine grower, spreading and irregular, with many slender weeping branches; has light-colored, speckled shoots, by which it is easily known; bears large crops, and ranks among the first as a profitable market variety. Of English origin.

Northern Spy—Large, roundish-conical, often flattened, sometimes ribbed, smooth, pale yellow mostly covered with glossy red, and distinct stripes of purplish crimson, some

russet around the stem, and coated with a fine bloom; flesh yellowish white, very tender, crisp, juicy, sprightly, sub-acid. Keeps through winter and late into spring, preserving its flavor remarkably fresh. One of the largest, most beautiful, and excellent long-keeping apples yet known. Shoots dark reddish, spotted, stout: the tree forms a very handsome upright head, requiring pretty severe pruning and thinning out until it comes into bearing, after which it requires little or no pruning.

The flowers open late and thus sometimes escape spring frosts: it does not come early into bearing, but once in bearing it is very productive. A fruit of the highest keeping and eating qualities, and with good culture, and care in picking and packing, profitable for market. Hardy; succeeds throughout the north. Originated in Ontario County, New York, about 25 years ago.

Tallman Sweet—Size above medium, roundish, slightly conical, pale, whitish-yellow, faintly tinged with red on one side, with a brownish line from stem to eye; flesh white, firm, rich, and very sweet; hardly first-rate as a dessert fruit, but from its exceedingly rich sweet, and great productiveness, is especially valuable for winter baking, and as food for stock. Keeps late into spring. Quite hardy; has dark colored wood, of an upright, strong, rapid growth, becoming spreading; vigorous and healthy when young, and one of the handsomest in the orchard, where it makes a round, regular, open head, and forms a rather large tree, bearing annually great crops of fair, even-sized fruit.

A popular, profitable sort, and from its firm texture and late keeping suited for shipment to distant markets. Originated on the grounds of Mr. Tallman, in Maine.

Hubbardston Nonsuch—Large, round-ovate, largest at the middle, nearly regular, smooth, glossy, rich yellow, nearly covered with deep, warm red, with small, broken stripes, and numerous dots of light crimson: russeted next the stem, and

sparsely dotted on the surface with large russet specks. Flesh yellowish, very rich, slightly sub-acid, with a strong mixture of a rich, sweet flavor; excellent. A famous New England sort, that for ordinary family uses has few equals. Season, early winter; loses flavor by late keeping.

Wood, brownish chestnut, with whitish specks; annual shoots slender, downy at ends; leaves large, deep green above, whitish beneath; tree very regular, upright, becoming spreading; more hardy than the Baldwin, when grown in very rich, heavy soils; a strong grower and great bearer.

Sells well in the market. Extensively planted and succeeds well throughout the Northwest. Originated in the town of Hubbardston, Mass.

CONCLUDING REMARKS.

So far as I can learn, the apples adopted in this list are those most generally popular throughout the State. There are a few prominent in other sections, not fully tested in Michigan, that may yet rank among the most profitable here, but the shrewder class of orchardists prefer to raise the few leading sorts of decided excellence, well known in the markets, rather than plant for the sake of variety,—such as produce well in most seasons, and especially those that are found to suit our soils and latitude.

The Northern Spy, although a tardy bearer, preserves late into spring, when there are but few good fruits, and therefore holds a high rank among market sorts.

There are many who would be unwilling to omit the Roxbury Russet, which, from its very long keeping properties, is in season after the others have gone by, and commands a high price. Or Steele's Red, a rather slow grower, but much esteemed as a very reliable sort in most parts of the State.

I should name Tompkins County King in place of Hubbardston Nonsuch, as a more valuable variety. It is a splendid apple; a strong grower, good bearer, and keeps through winter.

The Ladies' Sweet, also, is larger and better than the Tallman Sweet; is one of the best and most profitable winter sweet apples; hardy, a fair grower, bears young and abundantly, keeps well, bears carriage to market well, and is one of the best for table, cooking, or stock purposes.

A SMALL SELECTION.

For a small list, to be planted solely with a view of obtaining the largest income from 1,000 trees, it is believed that 50 each, Red Astrachan, Duchess of Oldenberg, Cayuga Red Streak, Maiden's Blush, and 200 each, Baldwin, Wagener, Golden Russet, and Rhode Island Greening, would make a selection that would be found the most productive, reliable, and profitable.

It is a matter of the first importance to those engaged in raising fruit, to be assured the sorts they cultivate are true to name, and they should look to them closely at the season of ripening, compare them with the descriptions, and better, when practicable, bring or send in specimens at the regular monthly meetings of this Society, for exhibition, examination, and testing.

JUNE MEETING.

STRAWBERRIES AND CHERRIES.

AN ADDRESS DELIVERED AT THE FIRST ANNUAL STRAWBERRY EXHIBITION OF THE MICHIGAN STATE POMOLOGICAL SOCIETY, GRAND RAPIDS, THURSDAY, JUNE 16, 1870, BY HENRY S. CLUBB.

On Thursday afternoon, June 16, there was a pleasant meeting of the Society, though not a large attendance. The exhibition of strawberries and cherries included the following standard and excellent varieties: A plate of Wilson's Albany, presented by O. R. Wilmarth, won general approbation; the samples of Hovey's Seedlings and Russell's Prolific, sent in by E. Carrier, were greatly admired; specimens of the Agriculturist and Green's Prolific, from the garden of S. S. Bailey, were superb; while the Boston Pine, from D. Schermerhorn, were amongst the finest on exhibition. Mr. C. C. Rood presented specimens of Black Tartarian Cherries, which were represented to be prolific bearers. Mr. A. T. Linderman brought samples of the White Ox-Heart Cherry. Mr. James D. Husted was tendered a vote of thanks for beautiful and large bouquets. The flowers and fruits were referred to a committee. After a discussion of the merits of the best varieties, Mr. H. S. Clubb, editor and publisher of the Grand Haven *Herald*, was invited to address the Society, and he proceeded as follows:

Mr. President, and Fellow Members of the Pomological Society—In compliance with your resolution, I appear before you to discuss a subject of my own selection. I have selected "Strawberries and Cherries," not only because these are the first fruits of our gardens and orchards, and are now in season,

but because there are some considerations in regard to them that I have long desired to present to you. I therefore thank you for this opportunity, and hasten to improve it.

A UNIVERSAL FRUIT.

The strawberry is as nearly as possible a universal fruit. The question is not, Where does it grow naturally? but, Where does it not grow? In its wild, uncultivated form, the strawberry can be found in all parts of the globe we inhabit, where the foot of man has trod. In its cultivated and improved form, it has become the favorite fruit of every civilized country, so far as heard from. It is therefore a subject of vast extent and absorbing interest.

Whether regarded for its beauty or its use, its rich, luxurious flavor, its medicinal, health-producing qualities, the strawberry has no peer, and at this season of the year it has no competitor.

As soon as the snows of winter disappear from the surface of the earth, the beautiful, fresh, green eye of the strawberry exhibits its vitality, and every ray of sunshine seems to expand the tiny plant into opening leaves. The plant has not grown large before a cluster of buds appears, and a few weeks of sunshine develop these bunches of buds into flowers, rivaling the daisy in its modest beauty, and excelling it in delicacy and profuseness. Rapidly the season advances; the blossom, like all things delicate and beautiful, soon falls off, giving place to a small green berry. Sunshine and shower succeed, and in a very few weeks we have before us an object not only "exceedingly pleasant to the sight," but "good for food."

Few, perhaps, of the thousands who purchase strawberries in our city markets ever contemplate this gradual unfolding, this process, step by step, which results in the perfection of this most perfect of all fruits; and yet it is a study replete with interest and fraught with delight at every stage, the climax of which is the enjoyment which the perfected fruit contributes to the sum of human pleasure.

But who their virtues can declare? Who pierce
With vision pure, into their secret stores
Of health, and life, and joy?

See how eagerly the children watch the first ripe strawberry, and how industriously they fill the basket with this most beautiful of all the berry family. See how the burning fever is assuaged and the parched lips refreshed by this cool and luscious fruit, infusing as it does new vigor and new hope to the heart of the desponding invalid. Nor is the hope fallacious in many cases, for in the whole catalogue of simple, direct, and efficacious remedies, what is there more potent to temper and purify the blood and infuse healthful exhilaration? Linnæus was himself cured of the gout by this fruit, and how many have been cured since can never be told.

To produce strawberries in abundance, so that they can be enjoyed by all, is a philanthropic ambition worthy of a Howard, and we are sure it would be applauded by Florence Nightingale, with all the enthusiasm of her generous and sympathetic nature. The mission of the fruit-grower is as much one of blessing to mankind as if he confined his labors to fine-spun theories of metaphysics, or advanced the most abstruse theologies. And the man who masters the art of strawberry culture and practically overcomes the obstacles to its success, is worthy of high consideration, and will long be remembered by coming generations. The names of Linnæus, Downing, Wilson, Hovey, Longworth, Wilder, and Knox are already household words, and their hold on the gratitude of mankind is renewed every returning spring, when the strawberries which bear these names contribute their life-restoring nectar to millions of homes. These men, for their labors in perfecting seedlings and hybrids, cannot be overestimated. They have marked out a career which renders the road to fame and fortune much easier to their successors.

THE POOR MAN'S FRUIT.

The strawberry is emphatically the poor man's fruit. It does not require the new beginner in fruit culture to wait five, ten, or fifteen years for a crop that shall repay him for his outlay and labor. While the apple, peach, pear, and other prominent fruits are coming into bearing, the strawberry, with its rapid growth and early maturity, is furnishing the support necessary for a beginner with no other capital. Plants put into the ground this year become productive next, and with proper cultivation a large crop may be secured every season with as much certainty as can a crop of corn.

THE SOIL.

The soil for strawberries should be rich and well drained. Bottom lands, where the water can be got rid of quickly, answer well for the strawberry. Under-drainage is undoubtedly the best, but where this cannot be readily attained, the land should be laid as nearly as possible like a well graded street, highest in the centre, and very gradually sloping off to a ditch or gutter on each side. Summer fallow with repeated plowing is a good preparation of the soil. It should be thoroughly mixed and pulverized by cultivators or drags, and the condition known as "mellow" should be attained. All the weeds should, if possible, be destroyed. If fall planting be adopted, as is most convenient after a summer fallow, cool, moist days should, if possible, be secured for putting out the plants. Rather than wait too long, however, for such weather, where a large amount of planting is to be done, artificial watering should be resorted to. The roots of the plants should be kept moist, in thick mud, and sufficient water poured into the hole before putting in the plant to secure a firm hold in pressing the earth around the root.

PROCESS OF PLANTING.

I have sometimes seen elaborate instructions for spreading out the roots of the strawberry plant and placing it on a con-

ical form of earth, covering the root with a trowel, etc. This may be very well where a small patch of a few yards only is to be planted, but is too slow a process where a large number of plants must be inserted in a short time. A dibble that will make a hole the size of a fifty-cent piece, is the best instrument to use in planting. If the soil be dry, some one should go ahead of the planter, making holes and filling them with water. The planter should follow with another dibble, putting in the plants and pressing the earth quickly around the root by another insertion of the dibble after the plant is in, care being taken not to cover the eye, which, in strawberries, is very near the root. None but strong young plants should be used. My observation is that it is not the old root of the plant that grows. This is useful to hold the plant to the ground, but it is the new roots which strike out all around the plant soon after planting, which become the main support of the growing vine. This is why we claim the spreading of the old root unnecessary. Having the plants firmly set is of much more consequence than any theoretical arrangement of the old roots, and this can be secured most readily by one stroke of the dibble on one side of the plant, pressing the earth towards it. By this process a large number of plants can be put in in a day, and if the ground be moist and fine, as it should be, the new roots which strike out just above the old ones will spread in their natural form and sustain the plant in its future growth. August planting can be made successful in this manner, no matter how dry the season, if careful hoeing and cultivation be attended to.

If, in extending a strawberry plantation, a sufficient number of plants cannot be secured, or if the beds from which the young plants are to be obtained are required to bear fruit, a large number of good plants can be raised by commencing a nursery bed for plants early in the season, say in May, in some shady place where water is at hand. The method is to prepare a small bed by digging, and then thoroughly drench it with

water, or liquid manure, pulverizing it and making it level. Sometimes I have used boxes for this purpose. Little girls will soon learn to do the work which follows, and enjoy it very much. As you cut the runners from the fruit-bearing vines, reduce each eye to a convenient length and prick out in this nursery-bed, two inches apart, keeping the whole shady until the plants have well struck. These eyes will strike whether they have roots when pricked out or not. In this way we can obtain both plants and fruit from the same vines; the fruit will be larger and the plants more abundant than if you had allowed the runners to strike in their native beds, and the plants thus nursed will be strong and vigorous for planting as soon as the ground can be prepared,—some of them as early as July.

BEST TIME FOR PLANTING.

Of course, in speaking of summer or fall planting, I do not recommend it as the best. But when the ground has to be got ready the same season, it is better to plant in the fall, in ground that has been well prepared by summer-fallowing, than it is to plant in the spring, on ground rank with grass and weeds, it being much less labor to destroy these before planting than after.

Mr. Peabody prefers the first of July for planting strawberries, and with the method of having nursery-beds as just described, the operation of transplanting can be performed at any convenient time, commencing when the runners first pricked out in the nursery-bed become good strong plants. They can, and if the weather be very dry when transplanted, had better be removed with the soil about them from the nursery-bed to the rows, without checking their growth, making planting in summer almost as good as in the spring, so far as the next year's crop is concerned. The convenience of this method consists in having a ready and abundant supply of plants whenever opportunity occurs to use them, and without damaging the bearing vines by digging around them for new plants.

CULTURE.

If the ground was well prepared, the work of keeping the growing plants clean will be comparatively easy. Hoeing should be carefully performed, and if any of the plants become loose in the ground, as is frequently the case in light soils, the earth should be pressed around them. The benefit of early planting will be seen in the vigorous character of each plant for standing the trials of winter.

MULCHING.

Mulching is greatly recommended, and if done carefully with some light material, is beneficial, but in a breezy country like Western Michigan, it is not easy to find a light mulch that will remain where it is placed. A heavy mulch of barnyard manure is more likely to destroy the plant than is frost, and of the two I prefer to risk the severest winter, depending on the natural covering of snow, to any mulching I have tried. Last winter, while one of my neighbors destroyed a magnificent bed of *Agriculturists*, planted last spring, by mulching with manure, my young plants of *Wilson's Albany*, planted in August and September, were uninjured, and are now producing a crop of berries, of which a sample is now before you.

BEST VARIETIES—WILSON'S ALBANY.

With regard to the varieties to be cultivated, I regard this as a matter of taste for amateur culture. For profit, as a market berry, the *Wilson's Albany* has long stood at the head of the list, and maintains that position throughout the entire western country. As a bearer it is very prolific. It stands transportation well, and it is a good selling color. Its strong acid flavor is considered by some a strong objection to it. I think this its chief recommendation. It gives it character. For what is the lemon so highly esteemed in all cases of fever? It certainly is not its sweetness. It is its fine acidity. Your sweet strawberry, to my taste, lacks character and is insipid. Not so with the *Wilson's Albany*. Whatever may be said of

it, no berry has done so much to establish strawberry culture as a profitable business pursuit, as this much-abused variety, and no berry is so universally cultivated for market. On suitable soil and with good culture, Wilson's Albany can be relied on for a good crop every season. It is hardy, early, prolific, and when ripe, a delicious berry. It is sometimes gathered before it is ripe, and this has, in most cases, given it a bad reputation for flavor, which it does not deserve.

The Triomphe de Gand is a favorite variety for amateurs, and so is the Agriculturist, but neither is as hardy as the Wilson. The more recent varieties, although possessing many good qualities, have not shown themselves remunerative market berries, in the West, and have been generally discarded by growers. The varieties will, however, be a proper subject for discussion.

For market purposes even, I would not use the horse cultivator. The small hand cultivator is much better adapted to the purpose, and can be so adjusted as not to injure the roots, while, keeping the ground stirred during the growing season, will prevent injury from drought. The rows need not be more than thirty inches apart, for using this implement, and the plants can be a foot apart in the rows. Any closer than this would be detrimental.

EXTENT OF CULTURE.

With regard to the extent of strawberry culture in the United States, some idea can be arrived at from the fact that on the 2d of this month a train on the Illinois Central Railroad arrived in Chicago with twenty-three cars, all filled with strawberries, the aggregate weight of which was one hundred tons! This was only one train on one railroad! The idea that the business can be overdone here is a great mistake. Steamers from the mouth of Grand River could just as well take a similar cargo every day from the middle of June to the middle of July, as to take the moderate shipments now exported. Instead of here and there a patch of two or three acres along the banks of Grand River, at Bass River, at East-

manville, at Lamont and Grandville, every landing should have hundreds of acres from which strawberries are gathered. Our crop here arrives in Chicago and Milwaukee in much better condition than the crop of South Illinois, because our water transportation is so much better for this delicate fruit, and, being later, the strawberry season would be greatly prolonged in the cities across the lake, by the more extensive culture which the future will undoubtedly develop. Small shipments are always unprofitable; large shipments are alone productive to both grower and dealer.

As a society, we should endeavor to so extend the culture of each fruit adapted to our climate, as will give Michigan prominence, not only in the quality of the fruit produced, but likewise in the quantity, so that the eastern shore of our noble lake shall become the resort of ambitious buyers who will find it profitable to come hither to purchase our products. To this end a large quantity as well as a good quality of fruit must be produced. A small shipment attracts no attention and can scarcely find a purchaser. A large cargo commands the market and secures the competition of buyers for the prize.

Much has been said about the profits of strawberry growing. When well attended to, the strawberry interest is a good one, and no business is profitable that is not looked after.

My aim has not been to give full directions in strawberry culture,—this is done in many useful little manuals,—but to throw out such suggestions as have occurred in the course of a few years' experience, and to awaken an ambition among our fruit-growers to excel in the production of what Mr. A. J. Downing describes as "Arcadian dainties" * * "the most wholesome of all fruits."

CONCLUDING SUGGESTIONS.

The principal objection to the very extensive production of strawberries, the perishable character of the fruit, seems likely soon to be overcome. At a recent meeting of the Horticultural Society of Black Lake, Captain Walker stated that by

inclosing strawberries in a dry closed box, and placing the box in an ice-house, he succeeded, last year, in keeping strawberries fresh three weeks, and he had good reason to believe the same plan would have kept them good twelve months. This plan should be fully tested, as ripe fresh strawberries at seasons of the year not now provided with them, would be a luxury for which many would be willing to pay handsomely ; and with proper facilities provided, strawberry-dealers need never crowd the fruit into the city markets so as to bring down the price below what is profitable to the producer and dealer. Safes will undoubtedly be constructed for this purpose, and our favorite berry may become an article of every-day consumption, instead of a luxury of a few summer weeks. Should this be accomplished, the production of strawberries will become as extensive as that of any staple article, and much more profitable.

I have only time to say that the cherry (the other fruit on our programme) is gradually coming into favor among growers. I know of one fruit-grower who is planting 3,000 cherry trees, and others who are intending to increase their plantations. Although the improved varieties of cherries are very fine, as a general thing they are not good bearers, whereas the common Duke Morrello—the sour red cherry—are very prolific bearers. For throat diseases, the cherry appears to be a specific of great value. The sour cherry is but little liable to the ravages of either birds or insects, and will bear, year after year, most abundantly. As a canned fruit, the sour cherry preserves its natural flavor and color better than any other fruit, and dried cherries (stoned as they can be by a new patent invention) always command a very high price in the market,—much higher than our best imported fruits. The Morrello cherry will grow vigorously and bear abundantly on the north side of a hill, or in many positions where other trees would fail and become unproductive. For these reasons, I think we should be safe in recommending the extensive culture of the Morrello cherry.

ADDRESS OF HON. FLAVIUS J. LITTLEJOHN,
BEFORE THE MICHIGAN STATE POMOLOGICAL AND THE KENT COUNTY
AGRICULTURAL SOCIETIES. AT THE FAIR GROUNDS, GRAND
RAPIDS, SEPTEMBER 29TH, 1870.

LADIES AND GENTLEMEN:—If I shall presume to deviate somewhat from the beaten track of addresses at annual fairs, I trust that you will pardon the digression.

The spontaneous productions of the earth in their primal condition are seldom adapted to meet the varied wants of man. In the system of providential economy, both mental and physical labor are essential prerequisites for the attainment of many things alike desirable and necessary for human use. The seasons may wheel their accustomed rounds, the sun may pour forth his effulgent beams—fertilizing rains may descend upon the lap of the earth, genial breezes may continue to fan the luxuriant verdure mantling the hills and carpeting the valleys, and yet *man*, without a constant draft upon his own resources, would perish from alternate heat and cold, or starve in the vestibule of nature's granary. The stern decree, "In the sweat of thy face shalt thou eat bread," still rests in pristine vigor upon the whole brotherhood of humanity. The fearful lesson has been written a thousand times upon the page of human suffering,—meagre famine, induced by want of proper forecast, by indolence, or by crime, has often exacted the most appalling tribute of life.

Even mental and physical activity, strenuous and continued, cannot alone purchase immunity from want. The noblest conceptions of genius have been penciled on canvas and chiseled on marble, whilst the pangs of hunger were consuming the artist. At the very time when myriads of husbandmen were compelled to labor in rearing useless pyramids, men died

of starvation within their shadow. Impelled by ambition or revenge, intellect has schemed, and men have strenuously labored, to make desolate the fairest portions of the globe, trampling to dust the bounties of nature garnered up by care and prudent forethought, and crushing out the image of God from the face of humanity. Generally, as a direct result, the recoil of pinching famine has proved more fearful than the sword.

Intellect, then, must operate in useful channels, and labor must be skillfully directed and dilligently applied to the legitimate pursuits of industry.

In the midst of gratulations for the eminent success which has so fully crowned your past efforts, it is natural for you to indulge in comparison and retrospection. You instinctively glance over other communities, nations, and countries, for the proper measure of your own attainments and true position in the scale of civilized being. The result to you must be highly gratifying, when tried by every rational standard of morality, of social happiness, general intelligence, or public prosperity. As it regards matters of practical utility, you may safely conclude that in mechanic arts, inventions, and scientific discovery, our country has no superior.

In the line of agricultural production, whether of stock or cereals, grains, grasses, vegetables, or fruits, with proper allowances for soil and climate, you have abundant cause for an honest pride in your community efforts.

Upon occasions like the present, we are also inclined to glance away backward over past ages, and to mark the progress made, at successive eras, in human affairs. We become curious in observing by what advancing steps the physical wants of man have pushed his intellect into investigation, research, invention, and discovery, until the actual circle of human power over elemental nature has become immensely enlarged.

Ill-shapen and rude as must have been the first tools of trade, still Tubal Cain, the primal artificer in brass and iron,

unquestionably furnished the crude models from which successive improvements have finally wrought out the innumerable variety of useful, elegant, and ornamental implements and utensils. Men were first clad in skins, and then with garments made of more flexible materials, elaborated by intellect for the occasion. But the twirling distaff and spindle, with the spool and shuttle of ancient matrons, have been entirely eclipsed by the modern spinning-jenny and power loom, performing the labor of myriads of hands, and daily throwing off incredible amounts in textile fabrics of surpassing beauty and of gossamer fineness.

Nor are these the only changes compassed by science and skill. Who, whilst viewing the glorious models of naval architecture, in this our age, would dream of tracing out their archetypes in the dug-out or frail canoe once creeping along the coast of Tyre, or in the more recent but clumsy Trireme of Grecian pirates in the Levant? Who, as he now in fancy contemplates the rude huts and cabins erected by Adam and his sons, would think it possible that genius, from such a starting point, could ever reach the proportion, style, and finish, much less the grand architectural design of St. Paul's, the Pantheon, or of St. Peter's at Rome?

What modern astronomer, standing in yonder observatory, as he traces with matchless accuracy field after field of the starry vault, measuring the planets in their orbits, and assigning to each its law of motion, does not forget to remember that his first lessons were derived from the nightly watchings of shepherds on the plains of Chaldea?

Who now detects in the mystic stone-wrought hieroglyphics, of some coptic priest of Egypt, the germ of the printer's art, or the embryo of the power press, daily throwing off to millions the free-born thoughts of cultivated minds? Or, stranger still, deems it true, that in such mystic groupings and durable stamping of thought are shadowed forth captive lightning, laden with telegrams and racing with light?

These are by no means the only inroads made by intellect upon the silent domain of nature. Geology, mineralogy, and chemistry are daily presenting us with astounding developments. I have time simply to point your attention to the steam engine, flying in mighty power with its lengthened train across kingdoms and continents, or driving leviathan ships with sure direction and resistless force over the storm-crested billows of the ocean.

Time and space have thus, for the purpose of travel and transit, been practically annihilated. Differences in soil and climate have been adjusted on a scale more nearly approaching equality. By a rational division of labor, far greater excellence has been attained in the several branches of industrial pursuits. The facilities of land and water communication now open the world as a market for the producer, whilst the products of every climate may be easily reached by the consumer.

Measured thus by the standard of present attainment and progressive improvement in the various arts, we are fain to conclude that civilization is now in advance of any former period.

We have thus reached a point of view whence we may still more closely inspect the three grand departments of human industry: *Agriculture*, *Manufactures*, and *Commerce*. In this general division, agriculture includes all the products of the soil, resulting from skill and labor, together with the avails of flocks and herds. By manufactures we understand all the products of the mechanic arts, whatever material may be used, or means employed by the artificer; whilst by commerce we mean the export and import, the sale, exchange, or other domestic disposition of all marketable commodities.

As thus defined, each of these general departments has challenged the attention of our race from its earliest foothold on earth; and yet, although each originated in the necessity or convenience of men, still there has ever existed, not only a perceptible, but marked difference in their public estimation

and progress. Despotic power, national pride, and aspirations for personal renown, have contributed to swell the amount of the distinctive difference thus created.

Commercial enterprise has ever been cherished, both as a source of profit to the merchant, and for the articles of taste and comfort it has been wont to furnish alike to palate and person. We now speak of the extent and variety of traffic, and not of the facilities for land and water transit. Beasts of burden, overland, and clumsy craft for the water, were the principal means employed for ages. As recently as the time when Venice, through her merchant princes, controlled the commerce of Southern Europe and the Mediterranean, very slight improvements had been made in naval architecture, always excepting the high-beaked, elegant, scull-driven gondolas of her own canals.

Mechanic art, in its extended sense, was early pressed to its utmost tension for supplying not only the wants and conveniences of men, but to meet the large demands of taste, whether ostentatious, voluptuous, or refined. Genius and talent were alike subsidized, whilst invention, discovery, and improvement were, at times, rewarded with the contents of public treasuries, to be replenished again by cruel exactions from agricultural classes.

When viewed with an understanding eye, a popular error seems to have prevailed in regard to the genius and attainments of the old Roman world. As a race, they could imitate, but not invent. They could furnish hand-pattern artisans, but they borrowed from Greece, Egypt, and from Assyria, their exquisite designs and models, and imported their principal architects. With a few noble exceptions, they were neither a literary nor scientific people. They were servile copyists. Even their system of jurisprudence, down to their Emperors, was derived from Greece, and compiled by an Ephesian. Their refinements were ostentatious, their pleasures were sensual, and their amusements often brutal. Their genius was for war, and their principal progress was in human slaughter.

Pardon this digression. It was wrung from me by reading upon their gilded palaces, their majestic temples, their triumphal columns, and their eighty thousand seated amphitheatres, the thrilling record of blood and famine in their impoverished provinces. Why should it then be deemed incredible that the Etrurian plow of Cincinnatus, composed of a wooden crotch, and harnessed by thongs of rawhide to the horns of the oxen, should have continued the Roman plow for many ages? Why should their uncouth reaping-hook, with its still more crooked left-hand accompaniments, have been superseded by a more improved utensil? Why should agriculturists have taken delight in extended fields of waving grain; in sleek, well-fed flocks and herds; or in spacious barns and well-filled granaries? Such possessions would have proved the certain signal for rapine and plunder; for personal violence, and perchance for murder. No! their only shield was apparent destitution; their only granaries were hidden excavations in the earth, whilst the forest or the mountain-steeps furnished a hiding place for their sheep and cattle. The imperial tax upon all their known possessions, in itself onerous, was usually doubled by the rapacity of their governors and their numerous officials.

With slight modification, agriculture has labored under similar embarrassments the world over, until modern times. Wherever the relation of lord and vassal exists, whether as serfs of the crown, or by any of the forms of feudal tenure, there you will never find either agricultural prosperity or progress. True, small parcels of land may be farmed out by the lord of the manor, to his retainers and dependents, and be, by them, kept in productiveness by hand-trenching tillage. But this is not what we, in America, call farming. When we speak of a farmer, we mean both the owner and cultivator of broad acres. Five hundred farms in portions of France would hardly equal in extent the possessions and inclosures of individual farms in our Northwestern States.

We have thus endeavored, in a cursory manner, to point out the wide difference in attainment and progress heretofore existing between the three great departments of industry. We have also endeavored to exhibit the leading causes for this essential difference.

Agriculture is, emphatically, a peaceful occupation. It demands social order, with effective and stable laws for protection from aggressive inroads. It requires science to direct, intelligence to guide, industry to accomplish, and a fee simple in the soil for its successful management. And, then, in the wide range of human effort, there is no field of human enterprise more useful, more honorable, or more promising in results than American farming. The first settlers of the Union were mainly agriculturists, and land tillage has all along been nominally regarded as taking a high rank in the pursuits of our citizens. And yet, until within a few years, what marked improvements were introduced into this system? What useful inventions to facilitate cultivation and to lessen the burden of labor for man and beast, had been regarded by our husbandmen? What discoveries of science had been generally adopted? What associations for an interchange of views and a comparison of products were in active operation? What newspaper, sheet, or periodical, laden with the gleanings of experience and scattering agricultural intelligence, was ever either circulated or read? What careful examination into the properties of different soils, and their adaptation to the various kinds of grasses and cereals, had ever been prosecuted to any satisfactory results? And what intelligent system of rotating crops and recuperating the exhausted energies of the soil by rest and fertilizing ingredients, was received as the basis of operations by any considerable number of our farmers?

The truth is, that agriculture, for more than a century, was conducted negligently, shiftlessly, without system, and without the requisite amount of intelligence, in every part of our country. The unavoidable result was everywhere experienced.

Farmers became impoverished; the average yield was lessened in quantity, and depreciated in quality; labor was but poorly requited, and the vocation (for it was not then deemed a profession) fell into disrepute. What wonder, then, that the son, forced to toil in the treadmill routine of his father's unthrift, should have acquired a thorough disrelish of all that pertained to the business, and have sought for himself some more congenial employment? But, thanks to the persevering energy, skill, and science of a few large-hearted and philanthropic individuals, agriculture has been rescued from opprobrium, and resurrected into activity and productiveness throughout the country. The series of spectacles like the one of to-day, now annually exhibited in every part of the land, are evidences of progress made and of triumphs achieved, and are also the harbingers of still higher attainments.

The hitherto dormant energies of our agricultural classes have been successfully aroused, and the broad and deep furrow will not only render earth's surface beautiful and productive, but will in turn penetrate far downward into the hitherto sterile domain of uncultivated mind. There are but few branches of human learning that will not ere long be drafted into the ranks, and render effective aid in the field operation of practical, scientific farming. Men will no longer, as the poet writes, follow the plow, "whistling for want of thought."

Competition will force into use all the valuable improved implements in husbandry. As the rich furrow yields to the patent share, and takes its place with but trivial effort, the physical science and mental faculties of the operator will have a wide margin for studying the broad volume of nature thus being opened up before him. The experimental tests previously established by combination, comparison, and analysis, will be diligently applied. Geological indicia will be observed; chemical affinities detected, and the elemental ingredients, and fertilizing properties of the upturned soil will be fully arranged for the class-table of seeds. Skillful

manuring will go far towards supplying deficiencies and preventing exhaustion.

Judicious management in rotating and maturing crops will relieve the soil by skillful drafts of gaseous nutriment from the atmosphere. The aftermath of dry meadows will be kept sacred from scythe, hoof, or tooth. To tillable land a season's rest in clover will be frequently awarded.

A corresponding improvement will be visible in the condition, breed, and blood of all domestic animals, whether reared for home use, or market abroad. Color, shape, size, attitude, activity, muscular strength, beauty in proportion, and graceful movement, weight, early maturing in taking on fatty matter and fleshy fibres—all these will be severally considered and the respective properties wanted will be made the basis of judicious selection.

No gaunt, long-nosed, apron-eared, large-jointed, crooked-back specimen of swine will longer offend the eye in the street, or at two years of age, with a clear live weight of 125 pounds, be thrust into a sty, to wallow in filth, and be reduced in six weeks to killing order upon flint corn in the ear.

Bald-headed, hairy-limbed, light-quartered sheep, with a scanty covering of coarse wool upon back and sides, will be entirely displaced by Leicesters, Southdowns, Saxons, and Merinos.

Neat cattle of high breeds and pure blood will range in green pastures,—well fenced, shaded, and watered in summer; and in winter, will no longer shiver over their scanty allowance of refuse fodder, in open yards, or wend their way 200 rods along slippery paths in search of water, and then, like a Mohammedan at his devotions, be compelled to take it kneeling.

Horses of approved varieties, by close breeding, keep, and proper training in position, step, gait, and general movement, will become what nature designed them to be, the most active, useful, and beautiful of all domestic animals. We shall no

longer behold them, with head and tail projecting toward the ground at an angle of 45 deg., creeping along with a ludicrous mixture of all kinds of gait, upon a couple of legs and a pair of setting poles, galled upon back and breast, troubled with thistletoe, glanders and heaves, and limping with pin-hip, ringbone, curb, and spavin.

Should the truth be honestly spoken, there can be no doubt that our domestic animals have too often been stunted by cruelty and dwarfed by neglect, until all beauty, size, and proportion have nearly disappeared. Let the sin and shame rest where they belong.

The change of which we have thus far spoken, is already extending itself to the conveniences and comforts of rural life. Taste, neatness, and methodical arrangement are already evinced in the buildings, fixtures, fences, orchards, and gardens of the farmer. Shade and ornamental trees are taking their proper position in the yards, along the highways, around the dwellings, and at judicious points in every field. Flowering shrubs, and fruit-bearing vines, are now being clustered and trained over trellises, delighting the eye and gratifying the taste. The choicest varieties of fruit from vine, shrub, and tree, each in its season, now add to the pleasures of the family and give a zest to toil itself.

At this precise point of my address, I am reminded by the public call for this meeting, by the splendid specimen varieties of fruit put on exhibition here, and by the attendance of representative gentlemen from various parts of the State, that a distinct branch of our main theme now presses itself upon our attention, and demands more than a passing notice. The Michigan State Pomological Society are entitled to have their specialties considerably treated.

Fruit culture, in proper localities, is a pleasant field for human care and effort, full of taste and beauty, and not only richly remunerating labor, but largely contributing to the comfort and luxury of living. It is a field of operation where

a good degree of intelligence, sound skill, observation, and experience must be combined to achieve excellence or to insure success.

In prosecuting fruit culture, men must have reference to the elemental condition of the proximate natural world. They must not ignore the immutable laws which govern locality and latitude. They must ascertain and recognize the normal condition and aptitudes of soil and climate; the appropriate degree of heat and moisture, and the length and general adaptability of the seasons requisite for the proper development and maturity of any given variety of fruit.

Our observation and human experience alike confirm the fact, that by the economy of natural law, a zone has been assigned to different species of fowls, fish, and animals. To each, in its appropriate sphere, all the appliances are at hand for its highest development.

But, as in the animal, so in the vegetable and fruit kingdoms, many varieties of the latter are susceptible of being transplanted and reared to fair perfection in zones and climates, and even soils, where they are not indigenous. This process, however, demands additional care, skill, and knowledge of all their peculiar properties and requirements, on the part of the grower.

In glancing over the map of earth's indigenous productions, we readily discover that ours is not a favorable portion of the globe for ravishing displays of nature in the floral kingdom, and that we are also debarred the pleasure of witnessing the expanding loveliness or maturing richness of the spices and luscious fruits of the lower latitudes. Our conception of equatorial landscapes, where nature is draped in her heaviest verdure and her most gorgeous floral attire, must fall almost infinitely short of the beautiful reality. So also of the fruits, of plants, shrubs, and trees of those regions, exotics here, and never reaching us without being denuded of their freshness

and bloom and tint, their exquisite odor, and their luscious taste.

But whilst frankly admitting our inferiority to the tropical climes in the particulars thus alluded to, we may readily ascertain that we enjoy countervailing advantages incident to our position, and fully compensating us for the deprivation of those exquisite though simple pleasures of taste. We may also have fruits of our own planting, handling, and maturing, in great abundance and variety, and fully adequate to supply our substantial wants, and at the same time both satisfy and gratify the palate of the fastidious epicure.

Whilst fruit-growing in Michigan, generally, may be pronounced a success, yet we of the western portion of the State shall not be deemed arrogant if we affirm that the peculiar fruit zone of the Northwest is limited to a belt of country ranging in breadth from fifteen to forty miles, and stretching along the eastern shore of Lake Michigan. Outside of this especial region, however, various kinds of fruit may be grown and matured in different sections of our lower peninsula. The various small fruits indigenous here, and even growing spontaneously, are the strawberry, the raspberry, the currant, the gooseberry, the blue and whortleberry. You all recognize the fruits. All these are susceptible of improvement by skillful cultivation, and may be made a source of large profit as basket fruits, as well as by conversion into jellies, wines, canned fruits, etc. Of the large fruits growing on climbing vines and trees, we have a large and increasing variety, many of them taking as kindly to our soil and climate as if indigenous to this region.

Through the economy of natural laws, as well as by our judicious selection and training, our distinct varieties may be again subdivided into classes.

As general standard varieties we would designate apples, pears, peaches, plums, apricots, nectarines, quinces, Siberian crab, cherries, and grapes.

Of these, as sub-varieties, which may be classed to mature in gradation, and thus adapted to meet the wants of successive seasons of the year, and possessing excellent properties, and sufficiently prolific to warrant cultivation, we name of apples, the Astrachan, Sweet Bough, Duchess of Oldenburg, Strawberry, Fall Pippin, Cayuga Co. Red Streak, Snow, Jersey Sweet, and Maiden's Blush, and then the Baldwin, Wagener, Golden Russet, Rhode Island Greening, Wine Sap, Tallman Sweet, Hubbardston Nonsuch, and Northern Spy. Of peaches, Early and Late Crawford, Early Barnard, Smock Free, Stump the World, and Hill's Chili. Of pears, Bartlett, Flemish Beauty, Louise Bonne de Jersey, Duchesse d'Angouleme, and White Doyenne; and of grapes, the Concord, Delaware, Clinton, Iona, Isabella, Diana, Northern Muscatine, Ives' Seedling, and Rogers' Hybrid. Other equally excellent sub-varieties may have been overlooked, or are unknown to the public.

From the remarks already submitted, we must all admit that fruit culture, as a science and a branch of human industry, is entitled to high rank, not only as a source of profit to the producer, but as a regulator of the blood and stomach, largely contributing to the health and comfort of the consumer. Without its presence, in some of the myriad forms of its preparation for our use, what refreshment table would be pronounced fully set?

But to achieve success in fruit culture requires unwearied oversight, skill, and persistent effort. The ground must be selected with due regard to the requisite amount of light, heat, and air. Then comes mulching at the root, staking, training, pruning, foreshortening, and for vines, trellising and cutting back. Preventives against blight and mildew must be sought for, and a constant warfare waged against the army of fruit and tree destroying insects. The borer, grub, caterpillar, and the root-worm will assault root, bark, body, branch, and foliage, whilst the curculio, with its numerous allies, will sting, and plant its fatal larvæ in the tender germs and incipient fruit.

It thus becomes apparent that protracted care and labor are imperiously demanded for successful fruit culture. A detailed statement of the mode and manner of practically applying this labor, we must decline to enter upon, and for two cogent reasons: First, because our masters in the art are present before us; and second, because our personal knowledge and experience have been far more exclusively devoted to the consumption than to the growing of fruit.

In concluding our remarks upon this special topic, it is peculiarly gratifying to be able to say that the measure of your past success in fruit culture is full of hope and promise for the future. For these auspicious results furnish a sure guaranty that intelligence, skill, and energy have been already embarked in the enterprise; and that the Michigan State Pomological Society will make this, their first anniversary, a bow of promise, spanning our whole peninsula, flooding it with brilliant beams from its parti-colored ground-work, and pledging to us a renewal of the Garden of Eden, on the eastern shore of Lake Michigan.

From the slight glances we have been able to take of the various fields of labor in the great department of agriculture, we may glean the great lesson of the hour, that both excellence and progress must depend upon intelligence and effort, abiding in, and springing from, a well-developed manhood.

That this lesson should have a peculiar force and significance with our rural classes, may be demonstrated in a few words. First, because the precious deposit of our national prosperity, glory, and honor; the prevalence of intelligence and virtue; the maintenance of social order; the perpetuity of our free institutions, and the hopes of our race, are largely in the keeping of our agricultural classes.

And second, there is far less of trust and stability in other departments. With them, *wealth* is more emphatically *power*, and that power is liable to be abused. In our larger towns and cities, with their mixed population and heavy influx of

foreign elements, a wide departure from the republican simplicity of our forefathers is clearly perceptible.

In the earlier history of our country, and down to a recent period, it has been an acknowledged fact that our people have stood foremost in the leading qualities and essential elements of a well-developed manhood. The reason is obvious. In the rapid opening and settlement of the country; in the activity, thrift, and economy necessary with many to keep want from the fireside; in the surging tide of advancing trade and commerce, and the bustle and activity at business centers; and in the ceaseless struggle to furnish marketable products, amply supplying the demand; the constant strain on body, brain, and muscle was calculated to round out and ripen up in full development our American manhood.

But now, in the widening and shifting fields of human effort, and the changing aspect of business affairs, new motives operate, and new incentives are brought to bear. In the ambitious yearnings for power and place, and the selfish cupidity for pecuniary accumulation and family aggrandizement; in the ostentatious and fashionable displays of opulent *parvenus*, and the graspings and revelings of those below to attain some higher grade or more exclusive circle, the tax and strain upon the brain and muscle, with the forced and unnatural direction of these new competing efforts, have become intense and exhaustive, whilst the average moral nature of society is being warped and coerced by design, or dwarfed by neglect.

Who, then, shall longer maintain the doctrines of our ancient republican simplicity, or practice the stern virtues of our forefathers, if the agricultural classes fail us? Where shall we look for mature judgment, for enlarged views, and integrity of heart and life, if not to them? In the hour of the nation's peril where shall we search for the man, with head to plan, with heart to brave and hand to execute, if not to them? How immensely important, then, that the youth,

in all rural districts, should be *physically, mentally, and morally* trained and schooled into a round and ripe development!

But grant that the flag of our Union shall continue to wave over the length and breadth of our country, and that our institutions shall continue to afford protection to all beneath the shelter of that flag, until the valley of the Mississippi, the steeps of the mountains, and the far-off shores of the Pacific, shall teem alike with a dense population. The vast preponderance of commercial wealth and power will still unquestionably be centered in the cities, along the seaboard east and west and south. Manufacturing enterprise is wont to seek out particular localities, and its wealth and power might remain concentrated in one extremity of the Union.

Where, then, shall be found an all-pervading interest, permeating the grand masses of society, and imparting freshness and vigor to the arterial tides of life, pulsating from the great heart of the Republic to its extremities? Agriculture, with its varied productions and diffusive interests, must solve the problem.

Ay! practically, scientific agriculture will ever be found adequate to supply the wants of all, still binding the extremities to the center, and that center to freedom, as anatomical ligatures unite the bones in healthful articulation.

Like, as among the aborigines, the belt of wampum passing from tribe to tribe, was the precursor and herald of the pipe of peace, so shall the sheaf of wheat remain, from ocean to ocean, and from the Lakes to the Gulf, the symbol of amity and the token of brotherhood.

AMONG THE ORCHARDS AND VINEYARDS.

The following report, made by Messrs. Clubb and Fasset, Committee on Orchards, September 29, 1870, addressed and submitted to the President of the Western Michigan Agricultural and Horticultural Society, which has its headquarters at Spring Lake, in Ottawa county, is inserted in this place to give information respecting the system of orcharding now being introduced and established in that county. It is especially the object of the State Pomological Society to encourage and promote the growth of orchards and vineyards, and demonstrate the feasibility and profitableness of broad and extended culture. The officers of local agricultural and horticultural societies throughout the State are earnestly invited to furnish information respecting the orchards and vineyards of their several counties; and information and statistics of this kind, from reliable and intelligent sources, will be given publication and wide circulation.

The committee to whom was entrusted the inspection of such orchards and vineyards as were entered for competition, respectfully report that they have performed the duty assigned them, and recommend the following

AWARDS.

The best three-year-old apple orchard—First premium, Jas. B. Soule; second premium, Charles E. Soule.

Best one-year-old pear orchard—First premium, Mr. Job Sessions.

Best three-year-old quince orchard—First premium, Rev. H. Beckwith.

Best bearing peach orchard—First premium, Chas. E. Soule ; second premium, Geo. Seagrove.

Best four-year-old peach orchard—First premium, Thomas Petty.

Best three-year-old peach orchard—First premium, Walter G. Sinclair ; second premium, Ambrose L. Soule.

Best two-year-old peach orchard—First premium, E. L. Treadway ; second premium, Thomas Petty.

Best one-year-old peach orchard—First premium, Frank Hall ; second premium, Orrin Douglass.

Best bearing vineyard—First premium, Messrs. Cutler & Savidge ; second premium, Thomas Petty.

Best five-year-old vineyard—First premium, Jas. B. Soule ; second premium, A. L. Soule.

Best four-year-old vineyard—First premium, Thos. Petty.

Best three-year-old vineyard—First premium, Thos. Petty.

Best two-year-old vineyard—First premium, Chas. E. Soule.

Best one-year-old vineyard—First premium, Timothy Hall ; second premium, Job Sessions.

REMARKS.

As is customary in a report of this character, your committee also submit remarks in reference to the several orchards and vineyards entered for competition, some of which will indicate the reasons which actuated the committee in recommending the above awards.

Mr. James B. Soule's three-year-old apple orchard has made good promising limbs. Mr. Soule's system of pruning encourages several good branches, which are led out in different directions so as to form a well balanced tree. We prefer this method to heading in short, and producing numerous shoots.

Mr. Chas. E. Soule's apple orchard of 350 trees, planted in 1867. These trees, which have not been cut back, but simply thinned out, have made good limbs, and are doing finely. Those which have been headed in, make bushy growth of

small wood, which we deem objectionable. The orchard is thrifty and promising.

Mr. Job Sessions enters his pear orchard, planted with 50 pear trees this spring. His pears appear to be all alive and doing remarkably well for the first season. This orchard well deserves the first premium awarded it.

Rev. Hiram Beckwith, residing between Spring Lake and Crockery, has the best quince orchard we have seen, and being the only one entered, is properly awarded the first premium. It contains 200 quince trees, planted three years ago. Those pruned by Mr. Ganzhorn are doing well, the plan being to encourage the growth of several limbs rather than numerous slender shoots.

Mr. Chas. E. Soule's peach-bearing orchard, planted in 1863, has done admirably. It contains 300 trees. His Barnard trees averaged him \$10 a tree this year; his Old Mixon, \$5; his Seedlings, \$2; his Early York, \$1, and his Crawfords, nothing. This little orchard yielded \$700 in 1868; \$100 in 1869, and \$400 last year. It is a miscellaneous orchard with regard to varieties, but its bearing qualities must be regarded as very superior.

Mr. George Seagrove has sold a considerable quantity of peaches from his orchard, even this year, but so far as we could ascertain it was less than the amount sold by Mr. C. E. Soule. Both are good bearing orchards.

Mr. Thomas Petty's peach orchard, planted in 1867, contains about 700 trees. It is located on the south side of a hill, and its fine, even rows of trees contrast with the white sand upon which they grow so luxuriantly, presenting a scene from the lake of surpassing beauty, being washed by the water below and tipped with clear blue sky above. The trees have perfected their growth, and the wood is ripened to the tips. The growth has been ample, and the show of double buds indicates a heavy crop for next season.

Mr. Walter Sinclair, the zealous Secretary of the Western

Michigan Horticultural and Agricultural Society, enters his peach orchard, planted in 1868. For healthy growth and uniformity, except where trees were replanted, it is difficult to find the superior of this three-year-old orchard. It is on the north side of the railroad, and with a slightly northern slope toward Spring Lake,—a very favorable aspect for peaches, especially with ample water protection as this has.

Mr. A. L. Soule's peach orchard, planted in 1868, contains 1,000 very handsome trees, with a long and gradual slope to the southwest. It is one of the most promising orchards on Spring Lake, and cannot be easily surpassed of its age.

Mr. Charles E. Soule's peach orchard of 300 trees, planted in 1868, is on a fine elevation, and located on a peninsula, giving it water protection in almost every direction. The land is rolling, and the growth this year has been all that is desirable. The wood is ripening rapidly to the tips.

The peach orchard of J. B. Soule contains 2,000 trees,—800 Early Crawfords, and the balance miscellaneous. It has made as much growth as is safe, even on this favored location, and begins to look like a bearing orchard. Show for fruit next year, excellent.

Mr. Elmore A. Treadway enters his splendid peach orchard, planted in 1869. The growth of these trees is surprising, and yet it is ripening up rapidly, and the terminal buds have formed. The double buds are quite numerous, and the prospect of a crop, even in 1870, is good.

Mr. Thomas Petty's peach orchard, planted in 1869, contains 500 trees. For regularity of growth, and uniformity of size and trimming, this orchard stands high in our estimation. Its aspect, sloping to the south, gives it a fine appearance, although it is probable a northern aspect would be better for the fruit. The fine elevation of most of the trees, however, renders their chance for avoiding frost excellent.

Mr. Frank Hall has a peach orchard of 500 trees, planted last spring. Not one of the 500 failed to grow, and all appear

to have made a healthy and vigorous growth. The long rows of uniform trees give high promise of future productiveness. It can scarcely fail to become one of the best orchards in the township. The varieties planted are 160 Mountain Rose, 75 Smock, 25 Crawford's Late, 25 Crawford's Early, 25 Hales, and 75 Old Mixon.

Mr. Orrin Douglass, Stahl's Bay, near Fruitport, enters a peach orchard planted last spring. It is at present surrounded by timber, being a new clearing. It contains 1,200 trees, mostly branching very low. They are very vigorous trees. Buckwheat, sown between, grew almost as high as the trees. This, probably, was a good precaution to prevent an overgrowth. The trees have now completed their terminal buds, and the wood is ripened to the tips, although the leaves remain perfectly green. The varieties are good: 600 Early Crawford, 250 Early Barnard, 250 Smock, 50 Early Hale, 100 Stump the World, etc. Mr. Douglass, with but little help, has cleared 18 acres this season, and has raised an abundance of corn and buckwheat, besides planting the orchard. Such industry and perseverance deserve the highest commendation, and but for the fact that 300 out of 1,500 trees died, and the newness and consequent imperfect preparation of the land, we should have accorded this the first premium. Soil, sandy with clay subsoil.

Messrs. Cutler & Savidge and Mr. Geo. Seagrove entered their orchards, but when your committee called, Mr. Seagrove was absent at the State Pomological Exhibition, so that we could not ascertain the particulars as to the amount borne by their orchards and vineyards this year, and must therefore pass them by with the remark that these are the best cultivated orchards on Spring Lake. Especially is this the case with those of Messrs. Cutler & Savidge, Mr. Seagrove evidently devoting his chief attention to them, somewhat at the expense of his own.

Mr. Jas. B. Soule's Concord vineyard was planted in 1866. It has borne a good crop this year, and has made very long growth, one vine measuring 19 feet.

Mr. Ambrose L. Soule's is a fine Delaware vineyard of about 300 vines, planted in 1866-7-8. These vines have made immense growth from the roots this year, and bid fair to bear a large crop next year.

The vineyard of Mr. Thomas Petty has produced this, its fourth season, 3,500 pounds of grapes. It contains 1,100 Concord's, 100 Catawbas, 50 Isabellas, and 300 Delawares. It is on a hill rising some sixty feet above the lake. The trellis is formed by posts with light rails top and below, with lath about ten inches apart, running perpendicularly like pickets. The vines, although bearing the above crop, have made a good growth this season, and the prospect is favorable for a heavy crop next year. Sandy soil.

Mr. Thomas Petty's vineyard of 500 Ives' Seedlings, is of three seasons' growth. It has similar advantages of aspect and elevation of the other vineyards, has made a good growth, and indicates that the Ives' Seedling will be a successful grape in this region. Soil, sandy.

Mr. Chas. Soule's Delaware vineyard of 100 vines was planted in 1869. It has made surprising growth for the Delaware in its early stages.

Mr. Timothy Hall enters his vineyard of 500 vines, mostly Concord, planted this spring. It has made good substantial growth, although the soil looks like a pure fine gravel. His plan is to keep the ground stirring while the plants are growing, as preferable to manuring. The healthy growth is a good recommendation of this theory. When the season of warm weather is protracted as this year, there is probably no danger from over cultivation in a soil of this character. Mr. Hall's vineyard has this advantage over that of Mr. Session: the land was prepared the year before planting, and the soil is naturally warmer on account of its gravelly character.

Job Sessions' vineyard of 200 vines was planted this spring. It contains 60 Delaware, and 140 Concord vines. The growth is good, especially as this land is new, and Mr. S. only com-

menced this year. Mr. Session is a careful and zealous cultivator. His place is a credit both to his judgment and industry.

Your committee conclude with the assurance that the present condition of all the orchards visited is highly satisfactory and promising. Never was wood better ripened, or buds more promising of an abundance of peaches next year, and nothing but the most excessively severe winter can affect the buds or wood produced this year.

The vineyards have also done well, both in bearing fruit and maturing wood for next season, and although the grape crop is large this year, the prospect is good for a much larger produce next year, on account of young vineyards coming into bearing that have not hitherto borne fruit.

DECEMBER MEETING.

The Society met at its rooms in Fuller's Bank, Grand Rapids, Tuesday, December 6, being the annual meeting for the election of officers, etc. In the absence of the President, Mr. J. P. Thompson was, on motion of Henry S. Clubb, elected President *pro tem*.

Mr. A. T. Linderman, the Secretary, stated that he had received communications from Dr. E. Ware Sylvester of Lyons, N. Y., promising valuable contributions of varieties for test by the Society.

Also, a letter from Mr. Geo. E. Waring, Jr., of Ogden Farm, enclosing Trophy tomato seed for that purpose.

SEEDLING APPLES.

Prof. Whitney of Muskegon presented samples of seedling apples from trees twenty years old, in Macomb county. They have been grafted from, and are extensively known as the Whitney apple. They have been kept till February, although this year they are like all other apples, not keeping as well as usual. The apple is a pale yellow, with a slightly strawberry flavor.

Mr. Pearsoll of Alpine also presented some fine seedling apples, raised from seed sown by Mr. J. L. Tuxbury of Casenovia, some eighteen years since. It is a large rich apple, similar to the Spitzenburg. This apple was very highly spoken of by the members present.

OLD VARIETIES.

Mr. Holt presented several varieties of apples and pears, including Fall Pippin, Cayuga County Red Streak, Peok's

Pleasant, Esopus Spitzenburg, Jonathan, Buerre Diel pear. All of these have kept well for this season.

ROTTING OF APPLES THIS SEASON—CANNING APPLES.

Prof. Whitney said, in reply to a question by the President *pro tem.*, that it was conceded that the cause of the rotting of apples was the ripening of the fruit much earlier than usual. Another reason is, the fruit ripened under a dense mass of foliage this year, and had consequently been brought on by a sort of hot-house maturity. Another reason is, the fruit was picked too late.

The best way to remedy the evil is to take the choice apples, such as the Northern Spy, cut them up as for sauce, and can them. The cans, being emptied now of other fruit, could be refilled with apples with decided advantage. It could be done either with or without sugar.

Mr. Pearsoll said: For keeping winter apples in the cellar, I would rather not pick until the first frost; but for packing in barrels, I would pick a little earlier. If you pick winter apples too early they will wilt.

BARRELING APPLES.

Mr. Whitney said: East we always barrel, even apples for our own use, and they keep better than in any other way. They are kept in a cool cellar, and, being well barreled, are kept in the dark and from the air. It is like canning fruit.

Mr. Pearsoll: I do not like moving and jarring apples. It injures them worse than freezing.

FROZEN APPLES.

Mr. Knapp said: With frozen apples it is best to let them remain till the frost draws out of them, and then you would not know they had been frozen. If you move them and make them thaw suddenly, they will rot. One reason the fruit rots this year is the fact that apples are more wormy than usual.

Mr. Pearsoll—When gathered wet?

Mr. Knapp—Yes. If you gather apples when they are wet, they will not keep so well.

Mr. G. H. Linderman—The best way to keep apples is, after they are picked, heap them up to sweat, then pack them in buckwheat, chaff, or bran.

Mr. Fuller was always in the habit of picking apples on the 10th of October. It is not natural for an apple to rot. It is in the careless handling of apples that the apples are made to rot. The apples should be gathered in a small basket, and then carefully packed in barrels, and headed in. In this way I never lost any apples. But I never could find a man that would handle the fruit with sufficient care.

Mr. Holt: A person may not drop an apple, and yet the apples may be injured by pulling out the stem. I believe, with Prof. Whitney, that we ought to gather apples earlier. You take a juicy apple like the Spy, and it is much harder to keep than the Russet, which is dryer. The difficulty of apples wintering by being picked green will be overcome by packing well in barrels.

Mr. Knapp mentioned an instance where the earliest gathered apples rotted worse than those gathered later.

It was stated that the Commissioner of Agriculture had just received from the Imperial Botanical Gardens of St. Petersburg, a collection of Russian apples, embracing about 100 varieties. These have come in perfect condition, and are well provided with grafts, of which the Society will receive a few specimens. It will be recollected that the Russian apples flourish exceedingly well in Michigan, to prove which it is only necessary to mention the Astrachan and Duchess of Oldenburg.

A. T. Linderman then read a paper upon the subject of establishing a Test Garden in connection with the Society, which was ordered printed.

On motion of Henry S. Clubb,

Resolved, That the Society hereby heartily indorse the action of the Secretary in issuing the circular to disseminators.

Resolved, That the Secretary be and is hereby further instructed to procure the services of competent horticulturists to conduct the tests of such new varieties as may be sent for that purpose.

Resolved, That a committee of five be appointed to prepare a petition to the Legislature for a special charter, under which the Society can be incorporated.

Resolved, That Article II of the Constitution be so amended as to read as follows:

II. The officers of the Society shall consist of a President, eight Vice Presidents, a Treasurer, a Secretary, and such Local Secretaries as may be elected by the Society.

On motion of S. L. Fuller,

Resolved, That the Society now proceed to the election of officers.

The following persons were then elected officers of the Society for the ensuing year:

President—Jonathan P. Thompson, Grand Rapids.

Vice Presidents—Henry S. Clubb, Grand Haven; George Parmelee, Old Mission, Traverse Co.; Henry Holt, Cascade, Kent Co.; T. T. Lyon, Plymouth, Wayne Co.; George Taylor, Kalamazoo; William Bort, Niles; Payne K. Leach, Utica, Macomb Co.; S. B. Peck, Muskegon.

Secretary—A. T. Linderman, Grand Rapids.

Treasurer—S. L. Fuller, Grand Rapids.

Executive Committee—J. P. Thompson, A. T. Linderman, N. P. Husted, C. L. Whitney, George H. Linderman.

Local Secretaries—B. Hathaway, Little Prairie Ronde; Thomas Archer, St. Joseph; Joseph Chapel, Eastmanville; E. Bradfield, Ada; James Hamilton, Big Rapids; Judge Ramsdell, Grand Traverse.

On motion of Henry S. Clubb,

Resolved, That the Executive Committee be and is hereby instructed to add to the list of Local Secretaries such names as it shall select.

Resolved, That the thanks of the Society be and are hereby tendered to President Saunders, Secretary A. T. Linderman, and Treasurer Fuller, for their efficient services during the past year.

Resolved, That a special committee of three be appointed to compile the proceedings of the Society during the past year, for publication in pamphlet form.

On motion of C. L. Whitney, J. P. Thompson, H. S. Clubb, and A. T. Linderman were appointed said committee, to report at the next meeting. The Society then adjourned to meet on the first Tuesday in January, 1871.

The subject for discussion will be, "Does the stock upon which a graft is set influence the fruit?" This question arises from the statement made by Prof. Whitney, relative to the Wagener,—facts which he has learned from Mr. M. S. Wagener of Muskegon, the grandson of the progenitor of that apple. Mr. Wagener brought the scions from Philadelphia, about the year 1800, and grafted them upon a wild apple stock on his farm, in Penn Yan, Ontario County, New York. From this tree, which ten years ago was still vigorous and fruit-bearing in Penn Yan, has been disseminated this popular apple. Prof. Whitney and other members of the Society hold that the original stock has a vital influence over the future character of the graft. Mr. Pearsoll and others believe the strictly opposite. The Society expect to hear from its Local Secretaries upon this subject.

A STATE TEST GARDEN.

A PAPER READ BY A. T. LINDERMAN, SECRETARY. AT THE DECEMBER MEETING.

Mr. President, and Gentlemen of the Society :

Whether or not it is practicable or possible to establish a Test Garden in connection with the Michigan State Pomological Society, for the purpose of assisting it to furnish to its members more reliable and authentic information than could otherwise be easily obtained, is a question which, to say the least, has two sides; and to impartially present these two sides to your notice is my object, resting assured that the intelligence of those present to-day, as well as those absent, into whose hands this little waif may fall, will furnish the correct answer.

THE BENEFITS.

The benefits of a Test Garden are many; in fact, so numerous that to attempt a notice of but a small portion is consistent with your time or my space. The first thing to be considered when a person has decided to plant fruit of any kind for sale, is, what variety pays the most money, and to the intelligent fruit-grower this is a matter of no little importance, for right well he knows that it costs just as much land, labor, and money to grow a second, third, or fourth grade fruit, as it does to grow a first grade; and an error committed in planting other than the best kinds is a mistake that can never be repaired, and one that costs him a loss every year of the difference between the grade he plants and the best.

LACK OF INFORMATION.

A very large proportion of those planting orchards have not experience enough to enable them to decide which sorts belong to the first grade, and which to the lower grades. Knowing this, they are naturally led to apply for this information to some source which they deem authentic. There are but few experienced fruit-growers to whom a person in need of such information might apply, but that would have a favorite list to recommend. There are, perhaps, as few who would furnish a list that might correspond with another list from another source. In consequence, the matter, to say the least, becomes somewhat mixed in the mind of the planter, who oftentimes, in despair, makes a list composed of each kind that has been recommended, feeling reasonably sure that some of it will be right at all events, and sends this order to the nurseryman to fill. The damage arising from this method of commencing—which is not by any means unusual—is much greater than would appear, at the first glance, possible, and an evil, gentlemen, which needs your *earnest* efforts to overcome; and I shall occupy a brief space upon the magnitude of this point, as I believe it has great force in this connection.

Allowing that four-fifths of the list that is furnished the nurseryman to fill, is composed of the second, third, or fourth grade fruits, then we find, when the orchard bears, that the owner has a great variety of fruit which never attracts the market-man, in consequence of which his fruit obliges him to find a home market by peddling it out from his wagon by the bushel or peck, or in some equally perplexing manner dispose of it for the best price offered, until, instead of the anticipated pleasure in handling the products of his orchard, it becomes a dread and a perplexity. What wonder is it, then, that so many orchards are neglected, and, by that neglect, what wonder that so many trees are diseased, and become the rendezvous of the thousand and one beetles, bugs, and borers? But not here does the result of this wrong commencement stop. The

nurseryman, compelled by this demand for variety, must propagate many kinds,—must keep a great variety of sorts, or shut up shop. And so long as the nurserymen of Michigan are obliged, in order to supply the popular demand, to grow fifty varieties of apples, forty of which are of second grade, just so long will the fruit-growers of Michigan plant fifty varieties, forty of which are of second grade to say the least; for the nurserymen do not grow their trees to throw them away. Somebody plants them. To strike, then, at the root of this evil, the purchaser must know that such and such are the best and only kinds to plant. This knowledge must be widespread, and accepted by unanimous consent. Such kinds only will then be propagated to any extent. To make any knowledge widespread and unanimous, it must be *convincing*. To make people generally convinced that a list of the kinds of fruit to be planted, furnished by this Society, for instance, is correct in every particular, is not so easy a matter, where that list is made up from members' opinions, for it is classed by many as simply an opinion, which is not necessarily any more nearly correct than their own, and consequently loses a great degree of its force. But if, in giving to the world our opinion as to the best and most prolific varieties to plant, that opinion is backed by the figures obtained from our tests, which show that such is the case, the matter assumes a different aspect at once, and, although this Society possibly might furnish a list to-day that the test of five years might not change in any particular, yet if it was not unanimously accepted it would lose a great share of its value, as I think has been clearly shown.

But to proceed. New varieties of all kinds of fruit are constantly being produced by people all over the State, some of them, without doubt, excelling in quality, productiveness, etc., anything heretofore known, while many, very many, are worse than useless, perhaps, while others, again, are of medium worth. Now we must test them all, or a greater portion of

them, before we can know what claims each one has to our favor. It certainly needs no demonstration to show that it is much cheaper and better to unite together in making this test do for all, especially where the subject to be tested will cost us, when united, nothing, but when procured for an individual trial will cost a large price. It may not be out of place in this connection to state that, under your direction, I have recently issued a circular to those who were sending out varieties,—as far as I have been able to secure their names,—stating that this Society would like samples of any new variety they were disseminating, for the purpose of testing the same, and promising a full report of the hardness, quality, and probable value of the subject for this section. In reply to which I have received and am still receiving prompt responses from a large number, who state that when the proper time arrives,—next spring,—they will gladly forward samples for trial. From some, on the other hand, I receive no response, which, although not conclusive, is an intimation that they do not care to have a test of their introductions made public; and there is no doubt in my mind that if this Society had a Test Garden, and it became well known throughout the States that such was the case, that every new variety of worth in the country would be furnished for testing, and as the great object of the disseminator would be to embody the report of this Society,—should it be favorable,—in the first offer of his plant to the public, it would be necessary for him to furnish the sample for test of the first stock, in order that it might have time to fruit and be reported upon by the time his stock was sufficiently large to offer.

This arrangement will not only be useful to the producer of new sorts, but it will also be of great benefit to the purchaser, for he will be kept informed of the value of all the new varieties offered, and in purchasing can rest assured that he is not getting a worthless article. And in order that nothing should in the least hinder the full working of this plan, all scions

or cuttings are reserved subject to the order of the donator of the plant. The end of this must be, if followed up, that any one offering, in future years, any new variety of fruit, without the favorable report of this test connected therewith, will give reasonable cause, especially to the members of this body, to beware; for it will be reasonable to suppose that, knowing the failings of their new sort, they refused to submit it to our test, or, having subjected it to the test, it was found wanting. But, aside from the uses before alluded to, there should be a department devoted to growing seedlings, fruiting only those which, as seedlings, possess marked characteristics. Another department should be devoted to hybridization. All this can be carried on at the same time, and with but little extra expense, and, beyond doubt, will result in producing new varieties of which the Society, and the State at large, may well feel proud.

So much for a rough outline of the general benefits to be derived from such an institution. On the other hand, it might be said that a test in one portion of the State would not be reliable for another portion. This might have some bearing in testing new kinds, for, owing to climatic differences, a variety which would prove hardy at one point might not be sufficiently so in some other section. In consequence, it has been deemed necessary to establish four points, in as many different sections, at which to conduct the tests already begun, but it does not become essentially necessary that any other part of the benefits arising from a Test Garden would be deprived of their usefulness on account of the locality at which it was placed, provided that location was central.

The last and great difficulty to be overcome, is to secure the means sufficient to carry the work to a successful issue, a portion of which must be furnished by the members of the Society. For, although there are several towns which will undoubtedly bid liberally to secure the location of this garden, with its monthly gatherings and its annual crowds, yet there

will need to be some funds raised by the Society to erect buildings, etc. It is thought by many that the best method to adopt in this case to supply the funds, would be to divide the amount needed into shares of stock, which would at once give to the purchaser an equivalent for his money, and at the same time be the means of founding what to me seems to be one of the enterprises of the age. The shares would be probably about ten dollars each, and as it is very desirable to obtain the expression of fruit-growers throughout the State upon this subject, I would respectfully request all who may read this article, to notify the Secretary of this Society as soon as practicable, whether the enterprise meets with their approbation or not, and if so, whether they will assist more or less, if a move is made to establish a State Test Garden.

FRUIT LANDS OF WESTERN MICHIGAN.

From the Report of the U. S. Commissioner of Agriculture, 1869.

The "Michigan Fruit Region," popularly so called, is now known to extend the whole length of the eastern shore of Lake Michigan. The peach belt may be said to vary from five to twenty-five miles in width, and its length is about two hundred and twenty-five miles. With an average width of ten miles, the area comprised amounts to two thousand two hundred and fifty square miles. It is estimated that the proportion of this area actually suited by circumstances of elevation, etc., to the successful culture of the peach and the grape, amounts to one-third, or 480,000 acres, of which about 10,000 acres are already planted in peaches, and probably 2,000 acres in grapes, only a small percentage being yet in full bearing condition. Throughout the entire fruit region the rise of real estate has been remarkable, especially in the neighborhood of the principal shipping points and harbors. There are also numerous small piers and second-rate harbors, where fruit is shipped to some extent; and in the vicinity of these points, land which formerly was considered valuable only for ties and wood, is now salable at \$10 to \$50 an acre, when all the valuable timber is stripped off, and before it is cleared for cultivation. The increase in the price of real estate has kept even pace with the confidence which each succeeding season inspires in the success of peach culture. The location of Grand Haven being central with regard to north and south, perhaps the increase here may be regarded as a fair average of the whole region. It is greater at St. Joseph, on account of the longer time the business has been in operation there; while the increase north

is proportionate to the time since it was discovered to be practicable to grow peaches at Manistee and Grand Traverse.

Planting peaches and grapes for market commenced in the vicinity of Grand Haven and Spring Lake in 1859-60. At that time only four or five orchards were commenced. They were planted on land which had been stripped of the pine, and was regarded as of very little value, commanding not more than ten or fifteen dollars per acre, notwithstanding the favorable locality. In 1867 one of these orchards, then containing sixteen acres planted to fruit, together with twenty-five acres of scrubby oak land, full of "grubs," sold for \$10,000 cash. A portion of another orchard, at Ferrysburg, sold in 1869 at \$500 per acre. The wild land in the vicinity of these orchards now varies in price from \$50 to \$200 per acre, as shown by actual sales. There is an abundance of land, however, equally good for the production of peaches, situated two and three miles from navigation, which can be bought at \$5 to \$10 per acre. This land could not be sold at any price two or three years ago, and on account of taxes was considered a burden to owners.

LIST OF PREMIUMS, AND RULES AND REGULATIONS

OF THE

MICHIGAN STATE POMOLOGICAL SOCIETY,

FOR ITS FIRST ANNUAL FAIR, HELD AT GRAND RAPIDS (IN CONNECTION WITH THE FAIR OF THE KENT COUNTY AGRICULTURAL SOCIETY), TUESDAY, WEDNESDAY, THURSDAY, AND FRIDAY, SEPTEMBER 27, 28, 29, AND 30, 1870.

RULES AND REGULATIONS.

This Fair will be held upon the grounds of the Kent County Agricultural Society, and on the same days that the Fair of that Society is held. One admission ticket will admit the purchaser to all the exhibitions of both Fairs. There will be but one ticket office, and tickets must be purchased at that office. Prices of admission: Single admission, adults, 25 cents; children under 12 years of age, 10 cents; teams, 25 cents; saddle-horses, 15 cents.

Individuals who wish to join the Society can do so by the payment of one dollar. Life memberships, ten dollars. It is desirable that all persons interested in its objects should join the Society, and it is expected that all exhibitors of articles will become members, though this rule will not be enforced with persons under 21 years of age.

Fruit-growers, and persons interested in fruit culture, are earnestly invited to become exhibitors, and use their influence to establish the Society upon a sound and prosperous basis.

All entries of all articles for exhibition must be made at the office of the Secretary, at Pomological Hall, on the Fair Ground, and should be made on the first day of the Fair, or by 12 o'clock M. of the second day.

Entries may be made for the exhibition without competition; and awarding committees in the several classes may notice such as they shall deem worthy, in their reports. But all such entries must be made by a member of the Society.

There will be a Superintendent of the Pomological Department, who will have the general charge and arrangement of the fruits exhibited, and to whom, with the fruits, must be delivered correct lists of the specimens and varieties entered by each exhibitor.

The several specimens and varieties shown by any exhibitor should be labeled with the name by which they are known to such person.

All doubtful cases which any special viewing committee either may not or cannot decide, may be referred to the Pomological Committee for final adjudication.

Exhibitors entitled to first premiums will be allowed to take in place thereof the diploma of the Society.

Members of awarding committees are requested to inform the Secretary of their acceptance as soon as they are notified of their appointment. Upon their arrival at the fair grounds they will report to the Secretary on or before 12 o'clock M. on the second day. A vacancy on any committee shall be reported to the Executive Committee, who shall fill such vacancies in the usual manner.

Members of awarding committees are requested to report promptly for duty, on Wednesday, at 1 o'clock P. M., and their reports, in writing, must be handed to the Secretary by 12 o'clock M., on Thursday.

No person who is an exhibitor can act as a judge on the class in which he exhibits.

Exhibitors, when requested, are expected to make written or verbal statements respecting their contributions.

As one great object of the Society is to collect valuable information upon Pomology, the several committees are requested to gather all the information possible from the

exhibitors in their classes, and to make their reports as full as time and circumstances will permit.

In case there should be deficiency in the funds of the Society, the premiums awarded will be liable to a pro-rata reduction.

When articles are not deemed worthy of a premium, the judges will, in all cases, withhold it.

Any article entered for exhibition in one class shall not compete for premiums in any other.

Under no circumstances will the name of exhibitor appear on the entry card.

When the judges have made their decisions, premium badges will be attached to the fruit. First premium, a blue ribbon; second premium, a red ribbon.

Fruit will be marked with cards furnished by the Secretary, designating the class and number of entry; and during the exhibition, all articles must be placed entirely under the management of the officers of the Society.

All articles entered for exhibition will be required to remain on the grounds during the days of exhibition, under penalty of forfeiture of the right to premium, unless permitted by the Superintendent to take them off the ground.

When a majority of the viewing committee are present, they shall constitute a quorum, and be authorized to award premiums; and the first on the list of those present shall be chairman.

No persons will be allowed to sell the articles they have on exhibition until special permission is granted by the Superintendent.

LIST OF PREMIUMS.

DIVISION A—COLLECTION OF FRUITS.

Committee—Hon. Flavius J. Littlejohn, Allegan; Martin Walsh, Spring Lake; J. M. Harwood, Jackson; A. S. Stannard, South Boston; J. P. Thompson, city.

	Best.	2d Best.
For collection of fruits from any one township in the State.....	\$20 00	\$10 00

RULE.—These collections shall not include fruits shown individually in any other class, and the committee of judges shall be composed of not more than one member from any one township.

For the best collection of the varieties recommended by the Michigan

State Pomological Society for general cultivation.....	\$10 00	\$5 00
--	---------	--------

NOTE.—The varieties recommended by this Society, referred to above, include the following: For summer use—the Red Astrachan, Sweet Bough, and Duchess of Oldenburg. For autumn use—Fall Pippin, Cayuga County Redstreak, Snow, Jersey Sweet, Maiden's Blush. For winter use—Baldwin, Wagener, Golden Russet, Rhode Island Greening, Tallman Sweet, Hubbardston Nonsuch, Northern Spy.

Exhibitors, to obtain the above premiums, must exhibit at least twelve of the above varieties.

For the best collection of fruits exhibited by any individual.....	\$5 00
For the second best.....	2 00
For the third best.....	1 00

DIVISION B—APPLES.

Committee—Rev. James Hamilton, Newaygo, H. E. Light, Greenville; Noah P. Husted, Lowell; Jacob Ganzhorn, Spring Lake; E. U. Knapp, Grand Rapids.

	Best.	2d Best.
For peck, any one variety summer apples.....	\$2 00	\$1 00
For peck, any one variety autumn apples.....	2 00	1 00
For peck, any one variety winter apples.....	2 00	1 00
For the best single variety of summer apples, not less than six spec.	1 00	50
For the best single variety of autumn apples, not less than six spec.	1 00	50
For the best single variety of winter apples, not less than six spec....	1 00	50
For the best peck Sweet Bough.....	1 00	50
For the best peck Red Astrachan.....	1 00	50
For the best peck Duchess of Oldenburg.....	1 00	50
For the best peck Fall Pippin.....	1 00	50
For the best peck Cayuga Co. Red Streak.....	1 00	50
For the best peck Maiden's Blush.....	1 00	50
For the best peck Snow.....	1 00	50
For the best peck Jersey Sweet.....	1 00	50

	Best.	2d Best.
For the best peck Wagener.....	\$1 00	\$0 50 ^f
For the best peck Baldwin.....	1 00	50
For the best peck Greening.....	1 00	50
For the best peck Northern Spy.....	1 00	50
For the best peck Golden Russet.....	1 00	50
For the best peck Hubbardston Nonsuch.....	1 00	50
For the best peck Taleman Sweet.....	1 00	50
For the best peck of any other variety.....	1 00	50
For best collection of apples grown by exhibitor.....	5 00	2 00
For best collection of Siberian Crab Apples.....	2 00	1 00
For best single variety Siberian Crab, not less than 20 specimens.....	1 00	50
For twenty specimens Transcendent Crab.....	1 00	50
For twenty specimens large Red Crab.....	1 00	50

DIVISION C—PEARS.

Committee—Judge J. G. Ramsdell, Grand Traverse; T. T. Lyon, Plymouth; Dr. A. Peck, Lowell; Wm. Davis, Kalamazoo; Asa W. Slayton, Grattan.

	Best.	2d Best.
For collection of pears, not less than six varieties.....	\$2 00	\$1 00
For peck summer pears, one variety.....	1 00	50
For peck autumn pears, one variety.....	1 00	50
For peck winter pears, one variety.....	1 00	50
For single variety summer pears, not less than six specimens.....	1 00	50
For single variety autumn pears, not less than six specimens.....	1 00	50
For single variety winter pears, not less than six specimens.....	1 00	50
Plate Bartletts.....	50	25
Plate Flemish Beauty.....	50	25
Plate Louise Bonne de Jersey.....	50	25
Plate White Doyenne.....	50	25
Plate Duchess d' Angouleme.....	50	25

DIVISION D—PEACHES.

Committee—Hon. Louis S. Lovell, Ionia; Hon. Henry Pennoyer, Crocker; S. D. Peck, Muskegon; Hon. Stephen Rossman, Greenville; Jacob Barnes, Grand Rapids.

	Best.	2d Best.
For collection of peaches, not less than six varieties.....	\$2 00	\$1 00
For half peck of early peaches.....	1 00	50
For half peck of late peaches.....	1 00	50
For half peck of clingstones.....	1 00	50
For dish single variety of peaches, not less than six specimens.....	1 00	50
For plate Early Crawford.....	1 00	50
For plate Early Barnard.....	1 00	50
For plate Smock Free.....	1 00	50
For plate Late Crawford.....	1 00	50
For plate Stump the World.....	1 00	50
For plate Hill's Chili.....	1 00	50

DIVISION E—GRAPES.

* Committee—Jacob Quintus, Grand Rapids; Wm. Bort, Niles; George Taylor, Kalamazoo; George Seagrove, Spring Lake; E. Bradfield, Ada.

	Best.	2d Best.
For collection of native grapes, not less than four varieties.....	\$2 00	\$1 00
For ten pounds of native varieties.....	1 00	50
For five pounds of Concord.....	1 00	50
For five pounds of Clinton.....	1 00	50
For five pounds of Isabella.....	1 00	50
For five pounds of Delaware.....	1 00	50
For five pounds of Iona.....	1 00	50
For five pounds of Diana.....	1 00	50
For five pounds of Ives' Seedling.....	1 00	50
For six clusters of Rogers Hybrids, Nos. 8, 14, 19, and 83.....	1 00	50
For plate of any valuable variety, not mentioned above.....	1 00	50

DIVISION F—PLUMS, APRICOTS, AND NECTARINES.

Committee—T. J. Ramsdell, Manistee; H. H. Goodwin, Ionia; W. O. Houghtaling, Grand Rapids; Joseph Bray, Middleville; J. P. Chapel, Owosso.

	Best.	2d Best.
For collection of plums.....	\$2 00	\$1 00
For one-half peck of plums, single variety.....	1 00	50
For collection of apricots.....	2 00	1 00
For one-half peck of apricots, single variety.....	1 00	50
For collection of nectarines.....	2 00	1 00
For one-half peck, single variety.....	1 00	50

DIVISION G.—SEEDLING FRUITS.

Committee—A. T. Linderman, City; J. N. Keeler, Middleville; Fletcher Fowler, Black Lake; W. H. Gregory, Pine Grove; Hunter Savidge, Spring Lake.

	Best.	2d Best.
For seedling apple.....	\$1 00	50
For seedling peach.....	1 00	50
For seedling pear.....	1 00	50
For seedling plum.....	1 00	50
For seedling grape.....	1 00	50
For seedling quince.....	1 00	50
For seedling Siberian crab.....	1 00	50

NOTE.—Specimens of the above seedling fruits, it is expected, will be accompanied with history, origin, and such other information as may be useful to characterize the fruit.

Premiums for seedlings may be awarded to others besides the original producer, when it is shown that the originator does not compete.

Exhibitors of seedlings must not expect a premium because the fruit exhibited is a "seedling." It must have merit equal to well-known varieties, the object being not to encourage inferior sorts.

DIVISION H.—QUINCES, CRANBERRIES, AND SMALL FRUITS.

Committee—H. S. Clubb, Grand Haven; G. S. Linderman, Grand Rapids township; Warren Hale, North Brownville; Thomas J. Slayton, Lowell; Allen Thompson, Otisco.

	Best.	2d Best,
For collection of quinces.....	\$2 00	\$1 00
For best single varieties.....	1 00	50
For peck, single varieties.....	1 00	50
For peck cranberries.....	1 00	50
NOTE.—Discretionary premiums will be allowed on all small fruit exhibited.		
For one quart of American chestnuts.....	1 00	50
For one quart of Spanish chestnuts.....	50	25
For half peck butternuts.....	50	
For half peck walnuts.....	50	

DIVISION I.—DRIED FRUITS AND PICKLED FRUITS.

Committee—Mrs. Hunter Savidge, Spring Lake; Mrs. E. L. Craw, Fruitport; Prof. C. L. Whitney, Muskegon; Mr. and Mrs. O. R. Wilmarth, city.

	Best.	2d Best.
For half peck dried apples.....	\$1 00	\$0 50
For quart dried pears.....	1 00	50
For quart dried peaches.....	1 00	50
For quart dried cherries.....	1 00	50
For quart dried currants.....	1 00	50
For quart dried raspberries.....	1 00	50
For quart dried blackberries.....	1 00	50
For quart dried quinces.....	1 00	50
For quart dried strawberries.....	1 00	50
For quart dried whortleberries.....	1 00	50
For collection of pickled fruit.....	2 00	1 00
For sample of pickled pears.....	1 00	50
For sample of pickled peaches.....	1 00	50
For sample of pickled apples.....	1 00	50

DIVISION K.—CANNED AND PRESERVED FRUITS.

Committee—Mrs. S. L. Fuller, City; Mrs. Henry Holt, Cascade; Mrs. N. P. Husted, Lowell; Mrs. Solomon L. Withey, Dity; Hon. P. R. L. Pierce, City.

	Best.	2d Best.
For collection canned fruits.....	\$2 00	\$1 00
For sample canned apples.....	1 00	50
For sample canned pears.....	1 00	50
For sample canned peaches.....	1 00	50
For sample canned plums.....	1 00	50
Best sample canned cherries.....	1 00	50
Best sample canned Siberian apples.....	1 00	50
Best sample canned strawberries.....	1 00	50
Best sample canned raspberries.....	1 00	50
Best sample canned blackberries.....	1 00	50
Best sample canned whortleberries.....	1 00	50
Best sample canned quinces.....	1 00	50
Best collection preserved fruits.....	2 00	1 00
Best sample cider apple sauce.....	1 00	50

	Best.	2d Best.
Best sample preserved pears.....	\$1 00	\$0 50
Best sample preserved peaches.....	1 00	50
Best sample preserved plums.....	1 00	50
Best sample preserved cherries.....	1 00	50
Best sample preserved strawberries.....	1 00	50
Best sample preserved raspberries.....	1 00	50
Best sample preserved blackberries.....	1 00	50
Best sample preserved whortleberries.....	1 00	50
Best sample preserved quinces.....	1 00	50

DIVISION L.—WINES, BOILED CIDER, AND CIDER VINEGAR.

Committee—Dr. Charles J. Hempel, City; L. H. Randall, City; John W. Pierce, City; E. P. Fuller, City; Dr. G. K. Johnson, City.

	Best.	2d Best.
Best collection domestic wines.....	\$2 00	\$1 00
Best sample currant wine.....	1 00	50
Best sample blackberry wine.....	1 00	50
Best sample grape wine.....	1 00	50
Best sample Clinton wine.....	1 00	50
Best sample Concord wine.....	1 00	50
Best sample Ives' Seedling wine.....	1 00	50
Best sample Delaware wine.....	1 00	50
Sample native grape wine of any other variety.....	1 00	50
Gallon cider.....	1 00	50
Specimen bottled cider, not less than six bottles.....	1 00	
Gallon boiled cider.....	1 00	
Gallon cider vinegar.....	1 00	

DIVISION M.—JELLIES.

Committee—Mrs. J. Morgan Smith, City; Mrs. James Hamilton, Newaygo; Mrs. W. W. Hatch, Lowell; Mrs. J. Mason Reynolds, Plainfield; Mrs. Spencer L. Shaw, Saranac.

	Best.	2d Best.
Collection of jellies.....	\$2 00	\$1 00
Specimen currant jelly.....	1 00	50
Specimen apple jelly.....	1 00	50
Specimen Siberian crab jelly.....	1 00	50
Specimen grape jelly.....	1 00	50
Specimen raspberry jelly.....	1 00	50
Best specimen blackberry jelly.....	1 00	50
Best specimen any other variety.....	1 00	50

THE PRESS.

For the convenience of editors and reporters of the press, accommodations will be provided, and every facility will be afforded them to obtain and transmit intelligence. A committee of reception from the press will receive their brethren from abroad on the field, and further the purposes of their coming. They are requested to announce themselves on arrival, and to present their names or credentials at the Secretary's office on the grounds, when they will be furnished with cards of admission.

Committee on reception of representatives of the press.—A. B. Turner, City; C. B. Smith, City; M. M. Clark, City; E. F. Harrington, City; C. C. Sexton, City.

Committee on reception of invited guests.—Moses V. Aldrich, City; Wilder D. Foster, City; S. L. Fuller, City; Ransom E. Wood, City; Charles H. Taylor, City.

POMOLOGICAL COMMITTEE.

There will be a pomological committee appointed, to whom will be given the charge of the nomenclature of the fruits exhibited, and before any examination shall be made by the viewing committees, the pomological committee will examine all specimens, and correct the names of varieties which may be wrongly named by the exhibitors, affixing a doubtful mark in cases where the name of the variety shown may be uncertain.

Pomological committee—Henry Holt, Cascade; Townsend E. Gidley, Grand Haven; J. D. Husted, Lowell; A. Parmelee, Old Mission; Thomas Archer, St. Joseph.

SUPERINTENDENTS OF POMOLOGICAL HALL.

Prof. C. H. Whitney, Muskegon; George S. Linderman, City.

THE ADDRESS.

An address will be delivered before the Society on Thursday afternoon, by Hon. Flavius J. Littlejohn of Allegan.

H. G. SAUNDER3, *President*.

A. T. LINDERMAN, *Secretary*.

THE FIRST ANNUAL FAIR.

After much consideration it was decided to hold the First Fair of the Pomological Society on the fair grounds of the Kent County Agricultural Society, and in union and connection with that Society. Consequently a premium list was prepared and issued, and all the necessary preliminary steps were taken preparatory to an exhibition of fruit. The old "Agricultural Hall" was enlarged and inclosed for the occasion, and the second story of the building, 100 feet in length by 30 feet in width, semi-circular in form, was devoted to the Pomologists. This first effort proved a perfect success, and established the fact that the fruit-growers intend to make the State Pomological Society a permanent and successful institution, and the Society will undoubtedly provide, next year, the largest building that can be obtained, for the purpose of giving all a good chance to exhibit their productions under the most favorable circumstances.

THE BEST TOWNSHIP COLLECTION.

We intend only to note a few of the most prominent features of this most interesting occasion. There was but one entry for the premium, \$20, for the best collection of fruits from any one township in the State, and this was made by one of the best fruit towns in Kent county, the township of Grattan. The committee, consisting of Judge Littlejohn, Judge Tracy, A. S. Stannard, and J. P. Thompson, had but little difficulty in making their award. The collection embraced 64 varieties of apples, 5 of pears, 6 of grapes, and 6 of peaches, and the following were some of the varieties:

APPLES.

Eustis, Disharoon, Fall Orange, Jersey Sweet, Gabriel, Green Pippin, Winter Sweet, Seedling, Green Seek-no-further, Red Canada, Twenty Ounce, Rambo, Black Detroit, Rhode Island Greening, Snow, King, Peck's Pleasant, Baldwin, Black Gilliflower, Compo Sweet, Tinifbate, Green Spitzenburg, Slug Sweet, Winter Pippin, Sweet Bough, Flushing Spitzenburg, Blue Pearmain, Pennock's Red Winter, Fall Sweet, Dwarf Bearer, Esopns Spitzenburg, Evening Party, Fall Jenneting, Winter Pippin of Vermont, Autumn Pearmain, Wagener, Ridge Pippin, Autumn Swaar, Jeffries, Westfield Seek-no-further, Holland Pippin, Duchess d'Oldenburg, Tallman Sweet, Mother, Summer Sweet, Paradise, Western Red Streak, Fall Pippin, Maiden's Blush, Surprise, Black Apple, Hill's Pie Apple, Northern Spy, Golden Sweet, Red Siberian Crab, Giant Apple (seedling).

PEARS.

Flemish Beauty, Seckel, White Doyenne, Winter Nellis, Beurre Bosc.

PEACHES.

Purdy's Seedling, Lemon, Late Yellow, Jersey Cling, Duga's Seedling.

GRAPES.

Concord, Black Cluster, Clinton, Delaware, Isabella, Catawba.

The two best autumn varieties in this collection were the Maiden's Blush and Fall Pippin, apples which have no superior for culinary and dessert uses, and which are always welcome in the markets. The leading winter sorts of the collection were the Rhode Island Greening, Golden Russet, Wagener, and Northern Spy, and these were prime, sound, healthy, and gave every indication of good keeping qualities. Very many of the apples in this collection were partially useless when compared with the few standard sorts, and the committee did not award

the premium to encourage the growing of a large number of varieties.

GRATTAN.

The township which won this sweepstakes is 22 miles north-east of Grand Rapids—north of Vergennes—and joins Ionia county on the east. Its soil is a heavy loam, excellent for fruit and wheat. The orchards of the town are just coming forward and beginning to bear. Whenever there is fruit anywhere it can be found in Grattan, and one resident of the town has had peaches on his farm for 18 years past without a failure. The inhabitants are intelligent and forehanded, and the soil, water, rolling land, all combine to make it a town desirable for settlement. The committee urged upon the people of that town to be cautious in their selections of fruit; make a few good selections and set out larger orchards, and in this way buyers will come to the town and take the fruit from the trees. Messrs. Slayton and Duga, the gentlemen who had the collection in charge, are entitled to an honorable mention for their enterprise and labors.

THE BEST INDIVIDUAL COLLECTION.

One of the largest and finest exhibitions of fruit ever made in the State was presented by Noah P. Husted, from his nursery at Lowell, but it was not entered for a premium. This collection embraced the following varieties, and those marked by a * are esteemed the best and most valuable sorts by Mr. Husted:

WINTER APPLES.

*Baldwin, *Wagener (among the very best), *Northern Spy, *Hubbardston Nonsuch, *R. I. Greening, *Golden Russet, *Tallman Sweet, *Peck's Pleasant, Seek-no-further, *Red Canada (for top graft), Swaar, Spitzenburg, Rambo, King of Tompkins Co., Roxbury Russet, Yellow Bellflower, Jonathan (good but slow grower), Wine Sap, Winter Pearmain, Pennock, American Pippin, Ben Davis, White Pippin, Minister, Twenty-

ounce Pippin, Old King, Neverfail, Pomme Grise, Black Gilliflower, Ladies' Sweet.

AUTUMN APPLES.

*Maiden's Blush, *Snow, *Cayuga Red Streak, *Autumn Strawberry, Tallow Pippin, *Hawley, *Jersey Sweet, Fall Orange, Ladies' Blush, *Fall Pippin, *Gravenstein, Cabbasha, Gloria Mundi, Black Detroit, Scolloped Gilliflower, Fall Jen-netting, Pumpkin Russet.

SUMMER APPLES.

*Duchess of Oldenburg, Summer Belle.

CRAB APPLES.

*Transcendent Crab, best; Montreal Beauty, excellent for dessert; Hyslop—season November; Soulard, long keeper; Cherry, small size.

PEARS.

Louise Bonne de Jersey, Duchess d'Angouleme, White Doyenne, Winkfield, Deurre Diel.

GRAPES.

*Concord, Isabella, Ives' Seedling, Rogers' Hybrids Nos. 15 and 4, Allen's Hybrid.

CANNED FRUIT.

*Transcendent Crab, Montreal Beauty, Concord Grape, Hartford Grape, Cherry, Gov. Wood, Whortleberries.

JELLIES.

Made from Concord Grape, Hartford Grape, Oporto Grape, Clinton Grape, Delaware Grape, Common Crab, Transcendent Crab, Cherry Crab, Hyslop Crab, Montreal Beauty.

Also, Orange Quince, English Sage, Sweet Chestnut.

This collection received complimentary notices from all the

committees. The Wagener apple appeared in all its perfections; five Cayuga County Red Streaks weighed five pounds and two ounces; six samples of the Maiden's Blush averaged twelve ounces each; while the Hubbardston Nonsuch and Northern Spy were beautiful beyond comparison. A peck of beautiful Orange Quinces, a neglected but most valuable fruit, attracted universal attention, while the samples of the American Sweet Chestnut, a tree invaluable for its timber, shade, ornament, fruit, and beauty, were much admired. The show of Crab Apples, and of canned fruit and jellies, was large and very creditable.

THE MOST VARIED COLLECTION OF GRAPES.

Although the exhibition was overflowing with apples, it was apparent, also, that the grape was to fill a large space. Mr. Edward Bradfield of Ada, a veteran grape amateur, made a remarkable exhibition, but not entered for a premium, of twenty-seven varieties of grapes.

Mr. Bradfield gave valuable information to the people on his favorite subject of grapes. He had great confidence in the Iona, and his really fine specimens of complete bunches of that delicious grape indicated that he has the secret of success in its cultivation. His Isabellas were also very fine. A seedling originated by his brother, known as "Bradfield's Seedling," is a very early grape, a little larger than the Delaware, and similar in flavor. Although it blossoms as late as the middle of June, it ripens in the middle of August.

The following list contains the names of the twenty-seven varieties of grapes exhibited by Mr. Bradfield, for the general advancement of the interest in grape cultivation, with his opinion and experience of their quality and fruitfulness, and the time of their ripening this season:

NAME OF FRUIT.	Quality.	Fruitfulness.	Time of Ripening.
Iona	1	1	September 10
Delaware.....	1	1	September 1
Crevling.....	2	2	September 1
Israella	2	2	September 1
Diana.....	2	2	September 20
Adirondac.....	1	2	August 20
Union Village.....	3	1	September 25
Catawba	2	2	September 25
Clinton	3	2	September 25
Early July	4	3	August 25
Blood's Black.....	3	3	August 25
Anna	2	2	October 1
Allen's Hybrid.....	2	2	September 10
Rogers' Hybrid No. 19.....	3	2	September 10
Lenoir	3	3	September 20
Lincoln.....	3	4	September 20
Alvey.....	2	2	September 20
Rebecca.....	2	3	September 20
Pauline.....	0	0	September 20
Hartford Prolific.....	4	1	August 24
N. Muscadine.....	4	2	August 25
Concord	4	2	September 10
Isabella.....	4	2	September 25
Black Cluster.....	3	2	September 1
Elsingburg.....	0	0	September 25
Taylor's Bullitt.....	0	0	August 25
Bradfield's Seedling, flowers June 15.....	.....	.....	August 25

Note by Compiler.—This list is undoubtedly correct with Mr. Bradfield's location, but it does not correspond with the experience of Ottawa county vine-growers, who would put the Concord, Isabella, and Hartford Prolific, and even the Clinton, much higher on the list in regard to quality and fruitfulness, while the Iona and Israella would have a much lower position than that assigned them by Mr. Bradfield. This list, however,

is very encouraging in regard to new and important varieties, as indicating what careful culture will do for them.

THE SPRING LAKE GRAPES.

Messrs. Savidge, Seagrove, and Petty desired the world should learn that Spring Lake had other attractions besides her magnetic waters, and that the day was near at hand when the banks of their lovely lake would be literally vine-clad, and that the grape is to be as common there as on the islands of Lake Erie. Their exhibition consisted of about twenty boxes of different varieties, the whole weighing about two hundred pounds, and it was a tempting and luscious show. All were pleased to notice, by the blue ribbon, that this collection had won the sweepstakes premium.

The Committee on Grapes—Mr. Quintus of Grand Rapids, Mr. Taylor of Kalamazoo, and Mr. Bradfield of Ada—made the following awards: Best collection of grapes, first premium, Hunter Savidge of Spring Lake; best Delaware, first premium, G. W. Dickinson of Grand Rapids town; best Clinton, first premium, Charles Alford of Ottawa county; second best, Henry Allen of Paris; best Concord, first premium, Hunter Savidge of Spring Lake; second best, President Griggs of Paris; best Isabella, first premium, G. W. Dickinson; second best, Thomas Petty of Spring Lake; best Rogers' Hybrid, George Seagrove of Spring Lake; best foreign variety,—the Black Hamburg,—Geo. Kendall, Grand Rapids; best Catawba, W. I. Blakely, Grand Rapids; second best, G. W. Dickinson. Mr. Quintus, in his report, made a valuable suggestion that hereafter all exhibitors of grapes should be required to place their samples upon plates, in order that they might be examined the more closely.

OTHER EXHIBITORS.

One of the largest exhibitors was Mr. Charles Alford of Talmadge, who has an orchard on the highest solid land of Ottawa county, containing over 100 varieties of apples, over

60 of which he had on exhibition at the fair. They were a very attractive feature, and deserve special mention. His Cayuga County Red Streak apples were a marvel of size for apples of their superior quality. He has, on his farm, a tree on which sixteen varieties of apples are growing. Mr. Alford received a number of premiums, among others, one for his Maiden's Blush, being the best single variety of autumn apples.

Another gentlemen who took a good share of premiums was G. W. Dickinson of Grand Rapids town. He had twenty varieties of apples, and Catawba, Delaware, and Isabella grapes; while Mrs. Dickinson was represented by dried peaches, currants, raspberries, whortleberries, and canned peaches and crab-apple jelly.

Mr. Henry Allen of Paris exhibited twenty-four varieties of apples, making a very beautiful display. They consisted principally of the varieties recommended by the Society, and fully sustained the recommendation by their appearance. He received the premium for the best collection grown by exhibitors; also, for the best peck of Fall Pippins.

C. J. Dietrich of Grand Rapids town had twenty-three varieties of apples, among which was the Minister, which Mr. D. esteems to be his best for culinary purposes, but inferior for dessert. The Scollop Gilliflower is another fine tasting apple, but a scraggy grower. Mr. D. brought his apples to the Fair in order to have them baptized with names—a commendable object, and one worthy of imitation by his brother orchardists. His Greenings were honored with the blue ribbon.

Geo. Kendall, Grand Rapids exhibited a small but superior collection of grapes, all of foreign varieties, including two bunches of the Black Hamburg, each bunch weighing near two pounds; two bunches of White Fontainebleau, the market grape of Paris; two bunches of the Dutch Sweetwater, very delicate and choice; two bunches of the Chasselas Musque,

and one bunch of Child's Superb. These varieties only thrive in this country under hot-house treatment.

Henry Holt & Son of Cascade entered twenty-eight varieties of apples. Their Flemish Beauty pear received a premium as the best autumn pear; best winter pear, the Vicar of Winkfield; among other varieties of pears was the Buffum, the Passe Colmar, Buerre Diel, and Louise Bonne de Jersey. The Messrs. Holt had splendid Swaar apples; the Porter they esteem as one of the best autumn varieties; the Jonathan and Snow excel, while the Roxbury Russet looked as if it would keep a year.

Rev. H. C. Waring, Grand Rapids town, received premiums for Late Crawford and Smock Free peaches; his thirteen varieties of apples embraced the most worthy and useful sorts.

A. W. Slayton of Grattan made a splendid exhibition of apples, pears, peaches, etc., and won several premiums. J. A. Duga, also of Grattan, had the best plate of Clingstone peaches.

S. Pierce, city, sent in the best single variety of winter apple,—the Northern Spy; second best, Steeles' Red Winter, was shown by Chas. Waterman.

The Wagener apple was well represented from the orchards of Jacob and David Yeiter of Lowell; also, of H. E. Light, Greenville; of Prof. Whitney of Muskegon; and this apple secured the premium as the best winter apple. The Northern Spy, exhibited by Chas. Waterman, was favored by the second premium.

F. M. Rosenkrans, Cascade, brought twenty-six varieties of apples; quite a curiosity was a sprig from a Hubbardston Non-such tree, bearing a cluster of six samples, weighing over three pounds. Miss Ellen D. Rosenkrans received premiums for a large variety of dried and preserved fruits and jellies.

Mrs. William Gunn, city, had excellent jellies, and Mrs. C. C. Rood, city, won a premium with her Clinton grape wine.

John Ashley of Oakfield made an entry of thirty-three

varieties of apples, among which were summer sorts that were not excelled. The Duchess of Oldenburg was noticeable; also the Sweet Bough and a plate of Golden Sweet.

John W. Newhall of Wyoming brought eight varieties of apples, embracing five samples of the Northern Spy, Greening, Twenty Ounce, Baldwin, Tallman Sweet, Ramsdell's Red Sweet, and Seek-no-further.

Mr. Wm. Rowe of Walker entered samples of Wagener and Spitzenburg apples.

G. W. Griggs, President of the Agricultural Society, sent fine Concord grapes, and took a premium.

John Suttle, florist, city, sent bouquets and plants of various kinds to decorate Pomological Hall.

J. R. Renwick, city, florist, also sent flowers and plants.

Mrs. T. R. Williams, Paris, exhibited a splendid plate of Duchess de'Angouleme pears.

Mrs. D. Schermerhorn, Walker, had dried currants, apples, peaches, cherries, as all good housewives should have.

Among other exhibitors who were honored with premiums, were Mrs. J. J. Watson, Mrs. A. F. Linderman, Mrs. G. S. Linderman, Mrs. Elihu Smith, D. K. Emans, S. Pelton, Charles Blaine, A. C. Barkey, O. W. Blaine, A. C. White, J. S. Davis, Geo. Van Nest, W. I. Blakely, C. L. Shoemaker, J. H. Ford, R. J. Stowe, E. U. Knapp, N. L. Crocker, S. Pierce.

Asa W. Slayton was awarded a premium for the best seedling apple, which was named "Grattan;" Henry Holt & Son the second premium for a seedling apple named "Cascade;" Chas. Alford a premium for a seedling peach named "Alford's Late Yellow."

Among the active chairmen of committees were Judge Lovell of Ionia, Judge Ramsdell of Grand Traverse, T. J. Ramsdell of Manistee, Hon. P. R. L. Peirce of Grand Rapids, George Parmelee of Old Mission, Jacob Quintus of Grand Rapids, Geo. Taylor of Kalamazoo, Rev. Mr. Hamilton of Newaygo.

PROF. WHITNEY'S FLOWERS.

One of the most attractive features of the Fair was the exhibition of flowers by Prof. C. L. Whitney of Muskegon, who made an entry of 200 varieties, the product of his garden and hot-house. The inconvenience of bringing flowers in pots was obviated in this case by bringing them out in baskets and placing each one in a small vial of water. In this way they were kept fresh during the entire exhibition. The arrangement of 200 varieties, embracing some fifteen genera of plants, in this way, was exceedingly tasteful, and displayed the flowers to a great advantage.

The foliage plants were peculiarly attractive, owing to their vegetation and beautiful tints.

The Japan pinks, the pansies, the verbenas, the dwarf chrysanthemums or asters, the zenias, the phloxes, the gladiolas, and the odoriferous tuberose, all manifested respective charms to the senses, and the ladies were especially interested in this part of the display.

Nothing is so refining and ennobling as the love of these most beautiful developments of Nature, and all felt grateful to Prof. Whitney for the opportunity he afforded of seeing so many perfect specimens.

PLENTY OF FRUIT.

One feature of this exhibition was worthy of commendation. It was not a thin show, and there was no effort to make a few samples cover a good deal of space, but the fruit was abundant, and lay in heaps around the Hall. There must have been one hundred and fifty varieties of apples, of all sizes, shapes, color, and quality, and each variety was represented by duplicates and triplicates, while the more popular sorts occupied as many as twenty plates each. Gentlemen who have attended like fairs in this and other States were free to acknowledge that the display of apples surpassed anything they ever saw before, and not a voice spoke otherwise than in terms of praise and sur-

prise. Old residents were especially gratified, and the old settlers who have borne the toil and broke the ground, were thankful to see, this day, the fruition of their hopes. Here was the result of their labor, and here was the pledge of the bounty for the future. It was estimated that twenty thousand persons entered the grounds during the exhibition.

THE ADDRESSES.

Judge Littlejohn delivered a very elaborate address at the fair on Thursday, September 29th, and was followed by Governor Baldwin, who expressed his delight at the progress made in Western Michigan, as follows :

GOV. BALDWIN'S ADDRESS.

LADIES AND GENTLEMEN :—I did not come here either for the purpose, or with the expectation, of being called upon to say a single word, and if I had come here with that purpose, I should feel that it was necessary to forego it for the reason, as you have already perceived, I am suffering from a severe hoarseness and cold, which renders it utterly impossible for me to speak on this occasion. But, ladies and gentlemen, while I shall not inflict upon you, or detain you here with any extended remarks of mine, I feel it a pleasure that I have the privilege of being with you on an occasion of this kind, in this lovely portion of our beautiful and fertile State. [Cheers.] I congratulate you, my fellow citizens, on the improvement manifested, and the increasing improvement felt and witnessed, throughout the length and breadth of our land, in everything pertaining to agricultural pursuits. [Applause.]

Fifty years ago, or a little more, what did we know, what was known, and, less still, what was thought of the doctrine and practice of rotation in crops ? What improvements, what wonderful improvements have been made in agricultural implements ! It has been said—I have somewhere read it—that fifty years ago, a good strong man could carry upon his shoulders the entire implements of a farm, except the cart and that

old-fashioned, clumsy harrow. To-day we see not only improvements in agricultural implements, but in the cultivation of the soil, as a consequence, and in the quantity and quality of everything that is grown upon the farm. While we live in a day of progress, in no other branch, in no other pursuit of life, has this progress been more marked, more telling, than in that great and noble calling, the cultivation of the soil.

The knowledge we possess, the larger part of the knowledge we possess or that is practiced by us all, has been obtained in our intercourse with one another. Now, fellow citizens, in every branch of agriculture progress has marked the day, but in no one branch has this improvement, perhaps, been more marked than in that of the cultivation of fruit.

If I remember aright, Mr. President, it is about twenty years since the formation of the American Pomological Society. But look to-day throughout the length and breadth of our land, at the agricultural, horticultural and pomological societies existing from north to south, and from east to west. The object of these societies is to bring together the people, especially those who are engaged,—I will not say who are interested, because I trust every man and every woman within the sound of my voice is interested, whether they are pursuing the calling of agriculture or not,—but it is to bring together the people, and those who are so engaged, that they may compare together the practice of farm, orchard, and garden, for the purpose of showing improvements.

If there is any one calling, if there is any pursuit intended by the Creator of all things for the special benefit of mankind; if there is any one pursuit more ennobling to man than any other, that pursuit is the cultivation of the soil. [Applause.]

Now, fellow citizens, I shall not detain you or weary you with any remarks of mine, but I do most heartily congratulate you upon the evidence I have seen to-day, of the improvement of this portion of our noble Peninsula State. I have

never seen in any part of our noble State—I have never seen anywhere—any more beautiful or more creditable exhibition of apples, than I have seen here to-day. I say I congratulate you upon this, your first exhibition of the Pomological Society. I congratulate you, my fellow citizens in this part of the State, upon these evidences of thought; these evidences of mind; these evidences that you intend to make use of thought, of mind, of intelligence; that you intend these to bear upon this noble calling. If there is any calling that requires thought, or any calling that is deserving of mind and thought, of education, of intelligence, it is that of the agriculturist. [Cheers.]

Again, fellow citizens, I congratulate you upon this exhibition. I congratulate you upon the growing importance of this section of our beautiful State, not only in this branch, but in everything that is for the well-being of society. [Loud applause.]

Judge Ramsdell of Grand Traverse spoke earnestly in support of the Pomological Society, urging the people to subscribe liberally, and sustain a society which is doing so much to promote the vital interests of the State.

Rev. James Hamilton of Newaygo made an eloquent address, showing that the pursuits of horticulture are identified with the highest and best interests of mankind, and promotive of moral and religious improvement.

SECRETARY'S ANNUAL REPORT.

—◆—
1 8 7 1 .

INTRODUCTORY.



To the Members of the Michigan State Pomological Society:

It is but just to say that the preparation for this volume was conducted under circumstances very unfavorable to success.

As will be seen by reference to the Constitution, the Society was only incorporated the 5th day of July, 1871, under the special act provided by the Legislature in April, 1871, for such organizations.

Up to that time no effort had been made to secure matter for the report, as the finances of the Society would only permit the publication of such matter as would naturally and necessarily find its way on my record through the usual addresses, discussions, and essays brought out by the monthly meetings and Annual Fair.

By the conditions of the act referred to, the transactions of the Society are to be published by the State. It seemed clear that this step was taken for the purpose of giving Michigan's great and fast increasing fruit-growing interests a proper place in her literature.

To occupy this broad field, thus suddenly opened in so short a time, in such a manner as should do justice to the cause, has been the problem. Not but that there was sufficient talent in our State to fill volumes like this, and creditably too,—there the difficulty did not lie,—but to find *all* this talent and secure its work in a new channel, has been the impossibility.

To all those who have so cordially responded to solicitations for articles for insertion in this volume, are gratefully tendered the thanks of

THE SECRETARY.

GRAND RAPIDS, MICH., December, 1871.

OFFICERS FOR 1871.

PRESIDENT.

JONATHAN P. THOMPSON, . . GRAND RAPIDS, KENT COUNTY.

VICE PRESIDENTS.

HENRY S. CLUBB, . . . GRAND HAVEN, OTTAWA COUNTY.
GEORGE PARMELEE, . . . OLD MISSION, TRAVERSE COUNTY.
HENRY HOLT, . . . CASCADE, KENT COUNTY.
T. T. LYON, . . . PLYMOUTH, WAYNE COUNTY.
GEORGE TAYLOR, . . . KALAMAZOO, KALAMAZOO COUNTY.
WILLIAM BART, . . . NILES, BERRIEN COUNTY.
PAYNE K. LEACH, . . . UTICA, MACOMB COUNTY.
S. B. PECK, . . . MUSKEGON, MUSKEGON COUNTY.

TREASURER.

SAMUEL L. FULLER, . . . GRAND RAPIDS, KENT COUNTY.

SECRETARY.

ALBERT T. LINDERMAN, . . GRAND RAPIDS, KENT COUNTY.

LOCAL SECRETARIES.

BENJ. HATHAWAY, Little Prairie Ronde, Cass County; THOS. ARCHER,
St. Joseph, St. Joseph County; JOS. CHAPEL, Eastmanville, Ottawa
County; EDWARD BRADFIELD, Ada, Kent County; JAMES
HAMILTON, Big Rapids, Montcalm County.

EXECUTIVE COMMITTEE.

JONATHAN P. THOMPSON, A. T. LINDERMAN, N. P. HUSTED, C. L.
WHITNEY, GEORGE S. LINDERMAN, GEORGE SEAGROVE,
JAMES HAMILTON, H. E. LIGHT.

POMOLOGICAL COMMITTEE.

JAMES D. HUSTED, Lowell, Kent County; HENRY HOLT, Cascade, Kent
County; TOWNSEND E. GIDLEY, Grand Haven, Ottawa County;
T. J. RAMSDELL, Manistee, Manistee County; W. I.
BLAKELY, Grand Rapids, Kent County.

LIFE MEMBERS.

NAME.	POSTOFFICE.
Edward Bradfield,	Ada, Kent County.
J. W. Humphrey,	Plymouth, Wayne County.
Flavius J. Littlejohn,	Allegan, Allegan County.
E. H. Reynolds,	Monroe, Monroe County.
H. G. Reynolds,	Lansing.
Asa W. Slayton,	Grattan, Kent County.
William W. Tracy,	Lansing.

LIST OF MEMBERS.

NAME.	POSTOFFICE.	COUNTY.
Archer, Thos.,	St. Joseph,	St. Joseph.
Alford, Charles,	Lamont,	Ottawa.
Allen, Henry,	Grand Rapids,	Kent.
Alger, J. D.,	Grand Rapids,	Kent.
Antisdel, J. F.,	Grand Rapids,	Kent.
Allen, Wm. W.,	Grand Rapids,	Kent.
Alger, J. P.,	Coldwater,	Branch.
Abrams, D. W.,	Paw Paw,	Van Buren.
Abell, O. C.,	Wayne,	Wayne.
Allen, John,	Plymouth,	Wayne.
Adams, H. D.,	Kalamazoo,	Kalamazoo.
Ashley, Wm.,	Grand Rapids,	Kent.
Bradish, Joshua,	Grand Rapids,	Kent.
Barkley, A. C.,	Ada,	Kent.
Blaine, Chas.	Grand Rapids,	Kent.
Bradfield, Ed.,	Ada,	Kent.
Blaine, O. W.,	Gainesville,	Kent.
Ball, E. M.,	Grand Rapids,	Kent.
Blakely, Wm. I.,	Grand Rapids,	Kent.
Ball, John,	Grand Rapids,	Kent.
Ball, Mary T. W.,	Grand Rapids,	Kent.
Baldwin, S. L.,	Grand Rapids,	Kent.
Baldwin, H. P. Gov.,	Detroit,	Wayne.
Budlong, W. H.,	Grand Rapids,	Kent.
Buck, S. S.,	Grand Rapids,	Kent.
Brown, Elisha T.,	Grand Rapids,	Kent.
Butterfield, J. N.,	Grand Rapids,	Kent.
Burlingame, E. A.,	Grand Rapids,	Kent.
Bailey, S. S.,	Grand Rapids,	Kent.
Blaine, W. H.,	Grand Rapids,	Kent.
Barker, Geo. M.,	Grand Rapids,	Kent.
Bement, Judge,	Grand Rapids,	Kent.

NAME.	POSTOFFICE.	COUNTY.
Bates, M. W.,	Grand Rapids,	Kent.
Bryan, D. W.,	Grand Rapids,	Kent.
Bottsford, Dr. A. H.,	Grand Rapids,	Kent.
Bowman, J. C.,	Caledonia Station,	Kent.
Bevier, J. D.,	Grand Rapids,	Kent.
Butterfield, Roger,	Grand Rapids,	Kent.
Blair, J.,	Grand Rapids,	Kent.
Bates, J. H.,	Kalamazoo,	Kalamazoo.
Berkley, J.,	Grand Rapids,	Kent.
Benham, L. Spencer,	Olivet,	Eaton.
Brown, Jeremiah,	Battle Creek,	Calhoun.
Bixby, Lorenzo,	Kalamazoo,	Kalamazoo.
Briggs, E. L.,	Grand Rapids,	Kent.
Beckwith, W. G.,	Grand Rapids,	Kent.
Bissell, O. J.,	Grand Rapids,	Kent.
Briggs, G. G.,	Grand Rapids,	Kent.
Beitses, John,	Grand Rapids,	Kent.
Bointon, D.,	Benton Harbor,	St. Joseph.
Clubb, Henry S.,	Grand Haven,	Ottawa.
Congdon, Giles S.,	Lowell,	Kent.
Carrier, Edmund,	Grand Rapids,	Kent.
Crosby, J. S.,	Grand Rapids,	Kent.
Crosby, M. S.,	Grand Rapids,	Kent.
Cornell, Robt. B.,	Bostwick,	Lake.
Chesebro, A. D.,	Grand Rapids,	Kent.
Cummins, N.,	Englishville,	Ottawa.
Cobb, T. M.,	1015 Grand Rapids,	Kent.
Clement, J. L.,	Ada,	Kent.
Carrier, H. S.,	Grand Rapids,	Kent.
Close, Converse,	Grattan,	Kent.
Clavel, John,	Grand Rapids,	Kent.
Currier, Arthur O.,	Grand Rapids,	Kent.
Cady, W. R.,	Grand Rapids,	Kent.
Cummins,	-----	-----
Coit, Chas. W.,	Grand Rapids,	Kent.
Cook, N.,	Grand Rapids,	Kent.
Chapel, J.,	Eastmanville,	Ottawa.
Chadwick, Geo.,	Grand Rapids,	Kent.
Carr, J. W.,	Grand Rapids,	Kent.
Crosby, M. S.,	Grand Rapids,	Kent.
Craw, Mrs. E. L.,	Fruitport,	Muskegon.
Chubb, A. L.,	Grand Rapids,	Kent.

NAME.	POSTOFFICE.	COUNTY.
Clark, M. H.,	Grand Rapids,	Kent.
Clay, D. P.,	Grand Rapids,	Kent.
Coller, Peter,	Adrian,	Lenawee.
Crane, Jonathan,	Kalamazoo,	Kalamazoo.
Comstock, C. C.,	Grand Rapids,	Kent.
Collar, S. W.,	Ada,	Kent.
Carrington, Geo.,	Trent,	Muskegon.
Chilson, N.,	Battle Creek,	Calhoun.
Corbett, D. E.,	Grand Rapids,	Kent.
Chandler, Chas.,	Grand Rapids,	Kent.
Coffinbery, W. L.,	Grand Rapids,	Kent.
Champlain, John,	Grand Rapids,	Kent.
Carver, D. L.,	Hart,	Oceana.
Calden, Jno.,	Grand Rapids,	Kent.
Colins, R. M.,	Grand Rapids,	Kent.
Deitrich, C. Jos.,	Grand Rapids,	Kent.
Dickinson, G. W.,	Grand Rapids,	Kent.
Duga, J. A.,	Lowell,	Kent.
Davies, John,	Grand Rapids,	Kent.
Dean, J. M.,	Grand Rapids,	Kent.
Dias, James,	Gaines,	Kent.
Davis, Erasmus,	Kalamazoo,	Kalamazoo.
Danforth, M. W.,	Cascade,	Kent.
Dyckman, B. H.,	South Haven,	Van Buren.
Dean, Isaac S.,	Kalamazoo, 450,	Kalamazoo.
Douglass, Orin,	Fruitport,	Muskegon.
Daniels, A. J.,	Grand Rapids,	Kent.
Duncan, M. S.,	Shepardsville,	-----
Ernans, D. K.,	Grand Rapids,	Kent.
Elliott, J. F.,	Grand Rapids,	Kent.
Eggleston, E. S.,	Grand Rapids,	Kent.
Engle, Columbus,	Paw Paw,	Van Buren.
Elms, George,	Kendall,	Van Buren.
Ehrenstrasser, Rev. I. G.,	Grand Rapids,	Kent.
Fuller, Samuel L.,	Grand Rapids,	Kent.
Fralick, Henry,	Grand Rapids,	Kent.
Farmer, Thomas,	Grand Rapids,	Kent.
Fuller, E. P.,	Grand Rapids,	Kent.
Ferry, W. M.,	Grand Haven,	Ottawa.
Fitch, Geo. C.,	Grand Rapids,	Kent.
Fitch, James O.,	Grand Rapids,	Kent.
Fuller, S. C.,	Grand Rapids,	Kent.

NAME.	POSTOFFICE.	COUNTY.
Fuller, E. P.,	Grand Rapids,	Kent.
Foote, P. S.,	Grand Rapids,	Kent.
Foster, W. D.,	Grand Rapids,	Kent.
Ferry, T. W.,	Grand Haven,	Ottawa.
Fox, P. V.,	Grand Rapids,	Kent.
Fowler, Fletcher,	Black Lake,	Muskegon.
Fowler, S. W.,	Manistee,	Manistee.
Ford, J. H.,	Grand Rapids,	Kent.
Fay, L.,	Portland,	New York.
Farnham, H. C.,	South Haven,	Van Buren.
French, George,	Rockford,	Kent.
Fox, George,	Alaska,	Kent.
Fuller, W. D.,	Newaygo,	Newaygo.
Ganzhorn, Jacob,	Grand Haven,	Ottawa.
Goodwin, H. H.,	Ionia,	Ionia.
Gillam, John,	Sparta Center,	Kent.
Gregory, W. H.,	Kendall,	Van Buren.
Gunn, Mrs. William,	Grand Rapids,	Kent.
Garfield, Chas. W.,	Grand Rapids,	Kent.
Griggs, Geo. W.,	Grand Rapids,	Kent.
Grove, Dr. James,	Grand Rapids,	Kent.
Gilbert, Frank B.,	Grand Rapids,	Kent.
Gidley, Joseph,	Kalamo,	Eaton.
Gass, John P.,	South Boston,	Ionia.
Godfrey, S. F.,	Grand Rapids,	Kent.
Gilbert, John,	Ovid,	Clinton.
Gunn, F. A.,	Grand Rapids,	Kent.
Green, Fitz W.,	Grand Rapids,	Kent.
Gallup, James,	Grand Rapids,	Kent.
Graham, E.,	Grand Rapids,	Kent.
Goodend, O. R.,	Montague,	Oceana.
Houghtaling, W. O.,	Grand Rapids,	Kent.
Holt, Henry,	Ada,	Kent.
Hamilton, James,	Big Rapids,	Mecosta.
Husted, Noah P.,	Lowell,	Kent.
Husted, James D.,	Lowell,	Kent.
Hart & Amberg,	Grand Rapids,	Kent.
Hughes, G. W.,	Grand Rapids,	Kent.
Hurd, C. W.,	Grand Rapids,	Kent.
Haldane, William,	Grand Rapids,	Kent.
Headly, Mrs. John,	Ada,	Kent.
Hosford, George,	Ionia,	Ionia.

NAME.	POSTOFFICE.	COUNTY.
Holt, H. Gaylord,	Cascade,	Kent.
Hogadone, John B.,	Grand Rapids,	Kent.
Hatch, Damon,	Grand Rapids,	Kent.
Hannah, J. C.,	Irving,	Barry.
Hooper, Edward,	Grand Haven,	Kent.
Holden, E. G. D.,	Grand Rapids,	Kent.
Howell, H.,	Grand Rapids,	Kent.
Henry, G.,	Marshall,	Kalamazoo.
Hand, Charles H.,	Hart,	Oceana.
Hatheway, Benjamin,	Little Prairie Ronde,	Cass.
Hayle, R., Jr.,	Lansing,	Ingham.
Hale, M. H.,	Alaska,	Kent.
Hayward, E.,	Casnovia,	Kent.
Heart, B.,	Grand Rapids,	Kent.
Houseman, Julius,	Grand Rapids,	Kent.
Harland, B. A.,	Grand Rapids,	Kent.
Humphrey, J. W.,	Plymouth,	Wayne.
Harris, I. V.,	Grand Haven,	Ottawa.
Hovey, William,	Grand Rapids,	Kent.
Hollister, H. J.,	Grand Rapids,	Kent.
Hilton, Robert,	Grand Rapids,	Kent.
Imes, Willie P.,	Grand Rapids,	Kent.
Isted, Henry,	Augusta,	Kalamazoo.
Johnson, Wm. W.,	Lowell,	Kent.
Johnson, P. W.,	Indian Creek,	Kent.
Judd, Albert H.,	Hart,	Oceana.
Jones, C. W.,	Richland,	Kalamazoo.
Jackson,	Alaska,	Kent.
Kniffin, C. A.,	Lowell,	Kent.
Kendall, George,	Grand Rapids,	Kent.
Knapp, E. U.,	Grand Rapids,	Kent.
Kipp, Charles,	St. Johns,	Clinton.
Kusterer, C.,	Grand Rapids,	Kent.
Kingsbury, S. O.,	Grand Rapids,	Kent.
Kingsley, Moses,	Kalamazoo,	Kalamazoo.
Linderman, A. T.,	Grand Rapids,	Kent.
Linderman, George S.,	Grand Rapids,	Kent.
Linderman, Isaac S.,	South Haven,	St. Joseph.
Light, H. E.,	Greenville,	Montcalm.
Levi Bros.,	Grand Rapids,	Kent.
Luce, B.,	Grand Rapids,	Kent.
Littlejohn, F. J.,	Allegan,	Allegan.

NAME.	POSTOFFICE.	COUNTY
Luce, R. C.,	Grand Rapids,	Kent.
Long, W. J.,	Grand Rapids,	Kent.
Ledyard, W. B.,	Grand Rapids,	Kent.
Lovell, Louis S.,	Ionia,	Ionia.
Luther, George,	Lamont,	Ottawa.
Lyon, S. W.,	Grand Rapids Town,	Kent.
Leitelt, A.,	Grand Rapids,	Kent.
Ledyard, H. T.,	Grand Rapids,	Kent.
Laraway, William,	Grand Rapids,	Kent.
Lamoraux, James,	Grand Rapids,	Kent.
Mathewson, J. M.,	Lowell,	Kent.
Minor, S. O.,	Louisiana,	Pike Co., Mo.
Moore, G. I.,	Walker,	Kent.
McManus, Father,	Cannonsburg,	Kent.
Miller, J. A.,	Grand Rapids,	Kent.
Myers, William H.,	Courtland Centre,	Kent.
McConnell, John,	Grand Rapids,	Kent.
Merrill, L. A.,	Grand Rapids,	Kent.
McWhorter, F. M.,	Grand Rapids,	Kent.
Mott, Isaac C.,	Battle Creek,	Calhoun.
Millham, William,	Kalamazoo,	Kalamazoo.
McClary, Andrew,	Galesburg,	Kalamazoo.
Merriman, Charles N.,	Hartford,	Van Buren.
Mason, W. R.,	Grant,	Kent.
McDonalt, S. D.,	Toledo, O.,	-----
Manning, F. M.,	Paw Paw,	Van Buren.
Manley, S. N.,	Lisbon,	Ottawa.
Newhall, John,	Grandville,	Kent.
Nelson, Ezra T.,	Grand Rapids,	Kent.
Northrop, A. W.,	Grand Rapids,	Kent.
Newton, Isaac,	Grand Rapids,	Kent.
Naysmith, H. R.,	Grand Rapids,	Kent.
Norris, S. D.,	Grand Rapids,	Kent.
Nelson, J. M.,	Grand Rapids,	Kent.
Noble, Mrs. A. D.,	Grand Rapids,	Kent.
Norton, M. H.,	Otisco,	Ionia.
Nelson, C. D.,	Muskegon,	Muskegon.
Nelson, N. W.,	Manistee,	Manistee.
Osborn, Rev. Mr.,	Ada,	Kent.
Perry, George,	Grand Rapids,	Kent.
Plumb, A. D.,	Grand Rapids,	Kent.
Purdy, Thomas S.,	Grand Haven,	Ottawa.

NAME.	POSTOFFICE.	COUNTY.
Pelton, S.,	Gainsville,	Kent.
Pierce, S.,	Grand Rapids,	Kent.
Pearsoll, S. M.,	Grand Rapids,	Kent.
Pennell, J. W.,	Grand Rapids,	Kent.
Peck, S. B.,	Muskegon,	Muskegon.
Pierce, H. R.,	309 Grand Rapids,	Kent.
Pratt, J. M.,	Ionia,	Ionia.
Patten, Lyman,	Grand Rapids,	Kent.
Pierce, P. R. L.,	Grand Rapids,	Kent.
Pulcher, Father,	Grand Rapids,	Kent.
Pierce, J. W.,	Grand Rapids,	Kent.
Perry, Ed. W.,	Saugatuck,	Allegan.
Perrin, W. P.,	Lowell,	Kent.
Pierce, E. S.,	Grand Rapids,	Kent.
Powers, W. H.,	Grand Rapids,	Kent.
Peet, George,	Allegan,	Allegan.
Parry & Piatt,	Lagrange,	Indiana.
Parks, Foster J.,	South Haven,	Van Buren.
Perry, M. M.,	Lowell,	Kent.
Peck, H. W.,	Grand Rapids,	Kent.
Putnam, B. W.,	Grand Rapids,	Kent.
Perkins, Charles,	Grand Rapids,	Kent.
Palmeeter, J.,	Hart,	Oceana.
Quintus, Jacob,	Grand Rapids,	Kent.
Quimby, I. L.,	Grand Rapids,	Kent.
Rowe, William,	Grand Rapids,	Kent.
Rosenkrans, F. M.,	Box 45 Grand Rapids,	Kent.
Rood, C. C.,	Grand Rapids,	Kent.
Ramsdell, J. G.,	Traverse City,	Traverse.
Ramsdell, T. J.,	Manistee,	Manistee.
Remington, Mark,	Ada,	Kent.
Robertson, David,	Grand Rapids,	Kent.
Renwick, Thomas,	Grand Rapids,	Kent.
Rathbone,	Grand Rapids,	Kent.
Ramsey, W. H.,	Grand Rapids,	Kent.
Robinson, J. R.,	Ada,	Kent.
Rathbone, G. B.,	Grand Rapids,	Kent.
Reynolds, J. M.,	Ansterlitz,	Kent.
Rossman, Stephen,	Greenville,	Montcalm.
Rider, Mirva,	Greenville,	Montcalm.
Roberts, W. D.,	Grand Rapids,	Kent.
Rumery, S.,	Allegan,	Allegan.

NAME.	POSTOFFICE.	COUNTY.
Reynolds, E. H., . . .	Monroe, . . .	Monroe.
Reynolds, H. G., . . .	Lansing, . . .	Ingham.
Robinson, Rix, . . .	Ada, . . .	Kent.
Robinson, Wm., . . .	Fruitport, . . .	Muskegon.
Rowland, O. A., . . .	Muskegon, . . .	Muskegon.
Saunders, Dr. H. G., . . .	Grand Rapids, . . .	Kent.
Schermerhoon, Daniel, . . .	Grand Rapids, . . .	Kent.
Suttle, John, . . .	Grand Rapids, . . .	Kent.
Smith, Mrs. Elihu, . . .	Grand Rapids, . . .	Kent.
Shumaker, C. L., . . .	Grand Rapids, . . .	Kent.
Seagrove, . . .	Spring Lake, . . .	Ottawa.
Savidge, Hunter, . . .	Spring Lake, . . .	Ottawa.
Scranton, L. S., . . .	Grand Rapids, . . .	Kent.
Slayton, Asa W., . . .	Grattan, . . .	Kent.
Simonds, Joel A., . . .	Grand Rapids, . . .	Kent.
Shafer, M. L., . . .	628 Grand Rapids, . . .	Kent.
Smith, George, . . .	1343 Grand Rapids, . . .	Kent.
Simonds, O. H., . . .	Grand Rapids, . . .	Kent.
Stanton, Geo. W., . . .	Grand Rapids, . . .	Kent.
Stout, Andrew, . . .	St. Johns, . . .	Clinton.
Scott, James H., . . .	Grand Rapids, . . .	Kent.
Sweet, Martin L., . . .	Grand Rapids, . . .	Kent.
Stowe, B. M., . . .	Grand Rapids, . . .	Kent.
Sinclair, R. I., . . .	Grand Rapids, . . .	Kent.
Smith, Thomas, . . .	Grand Rapids, . . .	Kent.
Shirk, Levi, . . .	Middleville, . . .	Barry.
Slayton, A. W., . . .	Grattan, . . .	Kent.
Snow, James, . . .	Muskegon, . . .	Muskegon.
Shepherd, Dr., . . .	Grand Rapids, . . .	Kent.
Sanders, Dr., . . .	Grand Rapids, . . .	Kent.
Stelletee, George, . . .	Grand Rapids, . . .	Kent.
Strickland, Hon. R., . . .	St. Johns, . . .	Clinton.
Stockbridge, F. B., . . .	Saugatuck, . . .	Allegan.
Shirk, A. B., . . .	Caledonia, . . .	Kent.
Seymour, Henry, . . .	Grand Rapids, . . .	Kent.
Sawyer, J. O., . . .	Grand Rapids, . . .	Kent.
Smith, Martin P., . . .	Hopkins, . . .	Allegan.
Soule, A. L., . . .	Spring Lake, . . .	Muskegon.
Smith, Mortimer, . . .	Grand Rapids, . . .	Kent.
Shepherd, C. L., . . .	Muskegon, . . .	Muskegon.
Sinclair, W. G., . . .	Spring Lake, . . .	Ottawa.
Stone, H. G., . . .	301 Grand Rapids, . . .	Kent.

NAME.	POSTOFFICE.	COUNTY.
Struble, J. C.,	White Pigeon,	St. Joseph.
Strigler, Artemus,	Adrian,	Lenawee.
Struble, Daniel,	Brady,	Kalamazoo.
Spring, Harry,	Grand Rapids,	Kent.
Slocum, H. W.,	Grand Rapids,	Kent.
Soule, Charles E.,	Fruitport,	Ottawa.
Soule, J. B.,	Fruitport,	Ottawa.
Sanford, S. R.,	Muskegon,	Muskegon.
Sessions, R. C.,	Gaines,	Kent.
Stivens, D. L.,	Grand Rapids,	Kent.
Smith, A. G.,	Muskegon,	Muskegon.
Sliter, B. F.,	Grand Rapids,	Kent.
Shearer, Jonathan,	Plymouth,	Wayne.
Stanton, F. L.,	Borches,	Kent.
Sayles, J. T.,	Lowell,	Kent.
Thompson, Jonathan P.,	Grand Rapids,	Kent.
Turner, Aaron B.,	Grand Rapids,	Kent.
Tracy, Judge,	Grand Rapids,	Kent.
Tucker, Foster,	Grand Rapids,	Kent.
Taylor, Theodore,	Hesperia,	Oceana.
Taylor, George,	Kalamazoo,	Kalamazoo.
Thompson, Allen,	Otisco,	Allegan.
Tompkins, J. H.,	Grand Rapids,	Kent.
Tolford, W. D.,	Grand Rapids,	Kent.
Trask, L. H.,	Kalamazoo,	Kalamazoo.
Thorp Alfred,	Oregon,	Ogle Co., Ill.
Tafft, William,	Plymouth,	Wayne.
Taylor, C. H.,	Grand Rapids,	Kent.
Tucker, A. J.,	Grand Rapids,	Kent.
Tin, J. M.,	Grand Rapids,	Kent.
Taylor, D. I.,	Ionia,	Ionia.
Taylor, T.,	Greenwood,	Oceana.
Tracy, Will. W.,	Lansing,	Ingham.
Voorheis, Wm. G.,	Frankfort,	Benzie.
Van Buren, O.,	Grand Rapids,	Kent.
Verdier, J. A. S.,	Grand Rapids,	Kent.
Waring, H. E.,	Grand Rapids,	Kent.
Whitney, C. L.,	Muskegon,	Kent.
Waterman, Charles,	Grand Rapids,	Kent.
White, A. C.,	Grand Rapids,	Kent.
Wallace, William,	Ada,	Kent.
Wood, Ransom E.,	Grand Rapids,	Kent.

NAME.	POSTOFFICE.	COUNTY.
Watson, J. J.,	296 Grand Rapids,	Kent.
Wyckoff, Jesse F.,	Grand Rapids,	Kent.
Withey, S. L.,	Grand Rapids,	Kent.
Winsor, J. W.,	Grand Rapids,	Kent.
Withey, L. H.,	Grand Rapids,	Kent.
Weatherly, W. W.,	Grand Rapids,	Kent.
Williams, John,	South Haven,	Van Buren.
Windows, J.,	Kalamazoo,	Kalamazoo.
Wilmarth, O. R.,	Grand Rapids,	Kent.
Winsor, L. G.,	Grand Haven,	Ottawa.
Young, George,	Grand Rapids,	Kent.

Total number of members for the years 1870 and 1871	421
From Missouri,	1
“ Ohio,	1
“ Indiana,	1
“ New York,	1
“ Illinois,	1
“ Michigan,	416

 421

The Michigan members represent twenty-four counties, of which

Kent has	256
Ottawa,	17
Kalamazoo,	15
Muskegon,	13
Van Buren,	10
Oceana,	7
Ionia,	7
Allegan,	6
Wayne,	6
St. Joseph,	4
Manistee,	3
Clinton,	3
Montcalm,	3
Calhoun,	2
Barry,	2
Eaton,	2
Branch,	1
Lake,	1

Lenawee,	1
Newaygo,	1
Mecosta,	1
Traverse,	1
Monroe,	1
Benzie,	1
	<hr/> 364

The reason that the summary of the members representing counties is less than the total number of members, is that this list comprises both the years 1870 and 1871. Many of the members of 1870 are members now, thus representing two members and but one county.

Number of members for the year 1871,	306
Number of members for the year 1870,	198
	<hr/>
Increase in 1871,	198
	<hr/>
Number of life members for the year 1871,	6
Number of life members for the year 1870,	1
	<hr/>
Increase in 1871,	5
	<hr/>

LAWS AFFECTING HORTICULTURE.

Session Laws of 1871, page 195.

AN ACT to provide for the incorporation of societies for the promotion of pomology, horticulture, and the kindred sciences and arts, in the State of Michigan.

SECTION 1. *The People of the State of Michigan enact*, That any five or more persons, and their successors, that may hereafter associate together for the purpose of promoting the interests of pomology, horticulture, agriculture, and kindred sciences and arts, may become a body corporate by complying with the requirements of this act.

SEC. 2. The persons intending to become a body corporate for the above named purpose, shall publish a notice of their intention to meet for organization, three successive weeks, in the newspaper published next nearest to the place where such meeting is to be held, said notice to state the object of the meeting, and when and where it will be held, and to be signed by at least three of the persons interested in establishing such organization, said meeting to be open to the public.

SEC. 3. The articles of association adopted at the meeting provided for in the preceding section shall specify: First, the names, offices, and objects of association; second, the limit of property; third, the limit of subscription of members; fourth, the town, city, village, county, district, or extent of the territory in which the operation of the society may be carried on, or to which they are limited.

SEC. 4. The articles of association, duly acknowledged by each stockholder, together with a certificate signed by the secretary, stating the amount of subscription paid in, must be registered in the office where the association is located, in a

book kept for that purpose, and a copy of the same must be forwarded to the Secretary of State.

SEC. 5. On complying with the requirements of this act, as above specified, associations so organized shall be a body corporate, and shall be capable of buying and selling real estate in the same manner as the agricultural societies, of suing and being sued in any court of this State; may have a common seal, and may alter or amend the same at pleasure, and be subject to the laws of the State applicable to agricultural societies; may make such by-laws and regulations, not inconsistent with its articles or with this act, as may be found desirable to promote the efficiency of the organization: *Provided*, That the by-laws shall not exclude any citizen of Michigan from membership of the association, attending the exhibitions, or participating in its discussions, who shall subscribe and pay to the funds of the society such sum or sums annually as the by-laws of the association shall prescribe.

SEC. 6. Should a State association for the promotion of pomology, horticulture, agriculture, and kindred sciences and arts be organized under this act, it shall be the duty of the secretary of said State society to make and transmit to the Secretary of State a report of the transactions of said society, including copies of papers read at its meetings, reports of exhibitions held, and of facts collected by correspondence or otherwise, at the end of the month of December of each year, said report of transactions to be printed in similar form and number of copies as the reports and transactions of the State Board of Agriculture and State Agricultural Society, under the direction of the Secretary of State.

SEC. 7. District or county, town, city, or village associations organized under this act, are hereby required to report through their secretary, in the month of November in each year, to the secretary of the State association, the proceedings of said society during the year, give a statement of the facts elicited, and of the experience gained during the preceding

year, such reports from district, county, town, city, or village societies to be used as correspondence in compiling the reports of the State association provided for in section six.

SEC. 8. Associations incorporated under this act shall, on compliance with the requirements thereof, be entitled to all the immunities, emoluments, and privileges accorded by law to the agricultural societies of this State.

SEC. 9. This act shall take immediate effect.

Approved April 15, 1871.

AN ACT to regulate the size of peach baskets.

SECTION 1. *The People of the State of Michigan enact*, That the quantity known as a box or basket of peaches shall contain seven hundred and sixteen and four-fifths cubic inches, or one-third of a bushel, strict measure.

SEC. 2. This act shall take immediate effect.

Approved April 13, 1871.

AN ACT to amend section one of act number thirty-one of session laws of eighteen hundred and sixty-nine, entitled "An act to regulate the size of dry or packing barrels for fruit, roots, and vegetables," approved March eighth, eighteen hundred and sixty-nine, be and hereby is amended so as to read as follows:

SECTION 1. *The People of the State of Michigan enact*, That the quantity known as a barrel of fruit, roots, or vegetables, shall be that quantity contained in a barrel made from staves twenty-seven inches in length, and each head sixteen and one-half inches in diameter, or ordinary flour barrel size.

Approved April 13, 1871.

Session Laws 1867, page 188.

AN ACT relating to the planting of trees or shrubs in the highway, being a bill to amend section (1111) eleven hundred and eleven, being section two of chapter twenty-five of the compiled laws, and to add two new sections thereto.

SECTION 1. *The People of the State of Michigan enact*, That section two of chapter twenty-five of compiled laws be amended so as to read as follows:

(1111). SEC. 2. Any person or persons owning or occupying land adjoining any highway not less than eleven rods wide, may plant or set out trees or shrubs on each side of said highway contiguous to his land, which trees or shrubs shall be set in regular rows at a distance not less than six feet from each other, and within eight feet of the margin of the highway: *Provided*, That in incorporated villages or cities the common council of such cities or villages may fix and determine the distance that such tree shall be set from the margin of the highways therein, and any such person owning or occupying land contiguous to any highway, and who is assessed any highway or poll-tax, may cause to be paid of such tax a sum not exceeding twenty-five per cent for any year, by planting trees or shrubs in the margin of the highway, in a space not exceeding eight feet in width from the margin of the highway, which sum, when so paid, shall be credited upon his highway or poll-tax for that year; and any overseer of the highway may cause a portion, not exceeding ten per cent of the highway tax in his road district, to be expended in setting out trees or shrubs, in a space not exceeding eight feet in width from the margin of the highway.

SEC. 2. Any person who shall (except as hereinafter provided) willfully injure, deface, tear or destroy any tree or shrub thus planted along the margin of the highway, or purposely left there for shade or ornament, shall forfeit a sum not less than five nor more than one hundred dollars for each offence, which sum may be recovered in any court of competent jurisdiction: *Provided*, That whenever it shall appear to

the board of commissioners of highways in any town in this State, that any shade or ornamental trees or shrubs, are an obstruction or an injury to any highway, said trees or shrubs may be cut down and removed by order of the aforesaid board of commissioners of highways.

SEC. 3. Any person who shall negligently or carelessly suffer any horse or other beast driven by or for him, or any beast belonging to him, and lawfully in highway, to break down, destroy, or injure any tree or shrub not his own, standing for use or ornament in any highway, or negligently or willfully, by any other means, shall break down, destroy or injure any such tree or shrub, shall be subject to an action for damages in a sum not less than one, nor more than twenty-five dollars, for each offence, to be recovered at the suit of the owner or tenant of the land in front of which such tree or shrub stands, or of the overseer of the highway in whose road district such tree or shrub may be situated.

SEC. 4. This act shall take immediate effect.

Approved March 27, 1867.

SECTION 1069 COMPILED LAWS.—No public or private road shall be laid out through any orchard or garden without the consent of the owner thereof, if such have been set out four years or more, or if such garden have been cultivated as such four years or more.

SECTION 5796 COMPILED LAWS.—Every person who shall willfully commit any trespass by entering upon the garden, orchard, or other improved lands of another, without permission of the owner thereof, and with intent to cut, take, carry away, destroy or injure the trees, grain, grass, hay, fruit or

vegetables there growing or being, shall be punished by imprisonment in the county jail not more than thirty days, or by fine not exceeding twenty dollars; and if any of the offenses mentioned in this, or in the preceding section, shall be committed on the first day of the week, or in disguise, or secretly in the night-time, between sun-setting and sun-rising, the imprisonment shall not be less than five days, nor the fine less than five dollars.

SECTION 5800 COMPILED LAWS.—*The People of the State of Michigan enact*, That every person who shall willfully and maliciously, or wantonly and without cause, cut down or destroy, or otherwise injure any fruit tree or trees, or any other tree or trees not his own, standing or growing for shade or ornament on the land of another, the damage for which said cutting down, destruction or injury to the owner or owners of said tree or trees shall amount to the sum of twenty-five dollars, shall be punished by imprisonment in the State Prison not exceeding five years, or by imprisonment in the county jail not exceeding one year, or by fine not exceeding five hundred dollars, in the discretion of the Court.

SECTION 5801 COMPILED LAWS.—*The People of the State of Michigan enact*, That any person who shall wrongfully take and carry away from any place, any fruit tree, ornamental tree, shade tree, ornamental shrub, or any plant, vine, bush or vegetable there growing, standing or being, with intent to deprive the owner thereof, or who shall without right and with wrongful intent, detach from the ground, or injure any fruit tree, ornamental tree, shade tree, ornamental shrub, or any plant, vine, bush or vegetable, shall be guilty of a misde-

meanor, and on conviction thereof, be punished by imprisonment in the county jail not more than six months, or by fine not exceeding two hundred and fifty dollars, or by both such fine and imprisonment, in the discretion of the Court.

Section 7, laws of Michigan, 1869, of an act to revise and consolidate the several acts relating to the protection of game, and for the better preservation of elk, deer, birds, and wild fowl,—page 213,—provides :

No person shall at any time, within this State, kill any robin, nighthawk, whippowill, finch, thrush, lark, sparrow, cherrybird, swallow, yellowbird, bluebird, brownthrasher, wren, martin, oriole, woodpecker, bobalink, or any song-bird, nor rob the nests of such birds, under a penalty of five dollars for each bird so killed, and for each nest so robbed.

ARTICLES OF ASSOCIATION OF THE MICHIGAN STATE POMOLOGICAL SOCIETY.

In compliance with the requirements of an act of Legislature, entitled "An act to provide for the incorporation of societies for the promotion of pomology, horticulture, and the kindred arts and sciences in the State of Michigan," said act approved April 15th, 1871,

We, the undersigned, at the city of Grand Rapids, this the fifth (5th) day of July, in the year of our Lord one thousand eight hundred and seventy-one, do hereby associate ourselves under the name and style of the Michigan State Pomological Society, and agree to be regulated by the following articles of association :

OBJECT.

ARTICLE 1. The object of the Society is to develop facts, and promulgate information as to the best varieties of fruit for culture in the State of Michigan, and the best methods of cultivation.

OFFICERS.

ART. 2. The officers of the Society shall consist of a President, eight Vice Presidents, a Secretary, and as many local secretaries as may be deemed necessary, a Treasurer, and an Executive Committee of nine members, including the President, Secretary, and Treasurer; of which committee four shall constitute a quorum for the transaction of business at any meeting of said committee, provided each member shall have been notified in the usual manner of such meeting. All the above officers to be annually elected by ballot.

OFFICE.

ART. 3. The office of the Society shall be in the city of Grand Rapids, Kent County, Mich.

ANNUAL MEETING.

ART. 4. The annual meeting for the election of officers, shall be on the first Tuesday in December in each year; the officers elected at such meeting, to commence service on the first of January following.

EXPIRATION OF TERM OF OFFICE.

ART. 5. The officers shall remain and perform their respective duties until their successors are elected and have accepted, but the regular term of office shall expire on the 31st of December, in each year.

TIME OF HOLDING MEETINGS.

ART. 6. The Society may hold a meeting on the first Tuesday of each month, at such place as the Executive Committee shall designate.

MEMBERSHIP FEE.

ART. 7. Every person who subscribes, or who may subscribe to these articles, and pay to the Treasurer the sum of one dollar per annum in advance, shall be entitled to membership unless otherwise voted at a regular meeting of the Society.

DISBURSEMENT.

ART. 8. No money shall be disbursed except on an order signed by the President, and countersigned by the Secretary, by direction of the Executive Committee.

OF AMENDMENTS.

ART. 9. These articles may be amended at any regular meeting of the Society, by a majority vote of such meeting: *Provided*, One month's notice shall have been given of such amendment.

AMOUNT OF PROPERTY.

ART. 10. This Society may hold personal and real estate to the amount of twenty thousand dollars.

BY-LAWS.

ART. 11. By-laws may be passed at any regular meeting, but a month's notice may be required.

TREASURER'S BOND.

ART. 12. The Executive Committee shall require of the Treasurer such security as they may deem necessary for the safe keeping, and proper disbursement of the funds of the Society in his hands.

A. T. LINDERMAN,	HENRY HOLT,
G. S. LINDERMAN,	EDWARD BRADFIELD,
JOHN SUTTLE,	G. W. DICKINSON,
A. C. BARKLEY,	J. P. THOMPSON,
GEORGE PERRY,	C. L. WHITNEY.

—

STATE OF MICHIGAN, }
COUNTY OF KENT, } ss.

Subscribed and acknowledged before me, a Notary Public, this fifth day of July, A. D. 1871, in the city of Grand Rapids.

HENRY S. CLUBB,

Notary Public in and for the County of Ottawa.

JAMES F. GROVE.

MINUTES OF THE MEETINGS
OF THE
MICHIGAN STATE POMOLOGICAL SOCIETY
FOR THE YEAR 1871.



JANUARY MEETING.

The January meeting was held at the Society's rooms, in Fuller's Bank, January 3d, 1871.

Vice President Holt, in the chair.

Minutes of last meeting read and approved.

THE FRUIT EXHIBITION.

Mr. James H. Martin of Grand Rapids town, had a fine display of apples, including splendid samples of the Cayuga Redstreak, Steele's Red, Yellow Bellflower, Jonathan, Swaar, Northern Spy, Esopus Spitzenburg, Rhode Island Greening, and Gloria Mundi.

Mr. Holt brought the Redstreak, Swaar, Greening, Jonathan, Wagener, and Buerre Diel pear.

Mr. Houghtaling presented a seedling resembling the Greening, represented to be a good keeper, Yellow Belleflower, Spitzenburg, and a small apple which Mr. H. called the Lady Apple.

PROSPECT OF FRUIT.

Mr. Husted said he was sorry to say that he had fears that the extreme cold had injured the peach buds. In many sections the thermometer had fallen to twenty degrees below zero, and it was held that at fifteen degrees below zero, peach trees are in danger. He represented, however, that if half of the buds produced, there would be plenty of peaches, as the trees were unusually full of buds. He had had a long experience, but he never knew fruit trees so well ripened, and so well prepared to resist the cold of winter.

A communication was read from George Parmalee of Old Mission, Grand Traverse County, dated December 12, 1870, in

which he said: "We have about two inches of snow—sod ground not frozen. The mercury has been only a very few degrees below freezing point, so far this fall. Everybody has been plowing here, up to the 9th inst. In my trip to St. Joseph and Benton Harbor, I found peach buds very much swollen. If we get a severe winter, the loss on fruit in that section will be very great. Here, the swelling is not enough to seriously endanger anything."

The Publishing Committee reported that they were compiling a history of the Society, with its proceedings, account of the fair, including debates, addresses, etc., and that the same would be issued in two weeks.

On motion of C. L. Whitney,

Resolved, That the Secretary furnish each member of the Society with a copy of the Secretary's Report about to be issued, and that he use such copies as are necessary in exchanges, and for use before the Legislature.

C. J. Deitrich, Chairman Auditing Committee, reported account of the Treasurer correct.

On motion, the discussion of the question, "Does the stock influence the Graft," be postponed until the February meeting.

On motion of Mr. Hamilton, the committee appointed to prepare articles of association, etc., preparatory to applying to the Legislature for an act of incorporation, were granted more time, and were instructed to report on Saturday, January 14.

A letter was read from O. C. Dustin & Co., of the Mt. Vernon nurseries, New Jersey, who promised to send varieties of fruit for testing.

Mr. Geo. S. Linderman stated that ex-President Saunders had received from the Commissioner of Agriculture, scions of Russian apple trees, for the disposal of the Society.

Mr. Bradfield of Ada, at the request of the members present, said he would if his health permitted, favor the Society at its next regular meeting, in February, with his experience, views, etc., on grape culture.

The President said that the Kent County Agricultural Society had, by a recent vote, added \$50 to the \$200 already donated this Society, for holding its fair in connection with that Society, and he would respectfully tender them thanks for the same.

Mr. G. W. Griggs, President of the Kent County Agricultural Society, said in reply: "We would have been pleased to have given you not only fifty, but five hundred dollars; and I assure you that had our finances been such as to warrant it, we should have presented you with the last named sum, for we do not wish to conceal the fact that a large proportion of our extraordinary success at the last fair was owing to the efforts made by, and our connection with, the Michigan State Pomological Society; and I would further state, that although I have attended many exhibitions of fruit, I never yet have seen equaled, especially in the apple department, the show made by your Society at our last fair."

Mr. Griggs, in reply to a question, said Mr. Seranton, a member of the Executive Board of the State Agricultural Society, was in correspondence with the other members, and he was in hopes to secure the location of the State Fair at Grand Rapids, for 1871 and 1872.

Mr. J. P. Thompson, President elect, read an address which was ordered printed, and will be found in another column.

An able and interesting paper was received from Benjamin Hathaway of Little Prairie Ronde, which was read and ordered printed, and will also be found on another page.

NEW INDUSTRIES.

THE COMPETITION IN WHEAT CULTURE—THE NECESSITY OF A DIVERSIFIED INDUSTRY—FRUIT CULTURE NECESSARY TO RELIEVE THE OVER PRODUCTION OF GRAIN.

ADDRESS BY J. P. THOMPSON.

Gentlemen and Members of the State Pomological Society :

I accept the position of President of your Society with gratitude for the undeserved compliment, and with a pledge that so far as my humble abilities permit, there shall not be wanting on my part, attention to the objects of the Society.

THE WANT OF MICHIGAN AGRICULTURE.

My chief delight in fruit culture arises from the fact that it promises to become a distinct, and a new industry in our midst. Just now the great and paramount want of the West is diversified labor, and diversified production. We want more new husbandries, new ways of getting a living, new methods of procuring competencies, new manufactures, new branches of agriculture; in a word, we need, and must have *diversified industry*. All men cannot be grain-growers, and prosper. It was natural for men when just stepping into the unbroken wilderness, to first sow the seed for bread, or to cultivate that which would soonest return an income.

The western pioneer is always necessarily first a grain producer. He generally is poor, and a beginner, and grain production promises to bring him quickest the necessities of life. But grain production is a business of world-wide competition, and but few men have made fortunes at it. A

majority of the tillers of the soil, the world over—the sturdy yeomanry of the human race—are grain growers.

THE WHEAT RAISING NATIONS.

It is a fact that but one commercial nation of the world,—Great Britain,—needs to look abroad for bread for its people. The 40,000,000 people of France; the 40,000,000 of the now united Germany; the 40,000,000 of the United States, grow their own breadstuffs, and oftentimes have a surplus to spare. It is a remarkable fact that these three controlling nations, each with about the same population, are the chief grain-growing nations of Christendom. East of these are the valleys of the Danube, and the plains of Southern Russia, producing the cereals in all their perfection and in wonderful abundance, so that the ports of the Black Sea have long been held as the unfailing granaries of Europe. It is this world-wide and crushing competition which renders wheat-growing a precarious and unprofitable business.

THE AVERAGE PRICE OF WHEAT FOR TWENTY YEARS.

Twenty-one years ago, when I first became acquainted with the heavy timbered lands of wheat-growing Michigan, that grain was selling in her interior towns at 75 cents per bushel; in 1852 it brought 90 cents; in 1853, \$1.25, and in 1854 it receded to 80 cents; in 1858 it reached a dollar, and in 1861 it went to \$1.10. During the civil war, prices ruled at higher rates, but it may be truthfully affirmed that the average normal price of wheat for the last twenty years, has not been over one dollar per bushel. This is not a rapid money-making rate, though it affords a slight profit. At that price, if wheat-growing was the only branch of western husbandry, the country would be poverty-stricken. It is for this reason that we should take a deep interest in every project which promises a new industry for western agriculturists.

THE INCREASING COMPETITION.

This deadly and oppressive competition is annually increasing by the addition of vast territories of arable and richly

productive land. Twenty years ago California was unknown as a wheat-growing and wheat-exporting State. Contemplate that immense wheat belt now just looming up on the western horizon, which is west of the Mississippi and north of the Missouri. Leave out all of the States east of the Mississippi; say nothing of Wisconsin, with her 24,000,000 bushels of wheat; say nothing of Illinois, with her 29,000,000 bushels; say nothing of Indiana, Ohio, and Michigan; do not mention Kansas or Missouri south of the Missouri river; but confine your attention to Minnesota, Iowa, northern Missouri, Nebraska, and the territories west of those States, and you will find a coming country rich enough and large enough to raise all the surplus wheat needed to supply the foreign demand. It is this expanding growth of the country which threatens to ruin the older wheat sections bordering upon the lakes. New England, New York, New Jersey, Maryland, and West Virginia produced 24,000,000 bushels of wheat in 1869; Pennsylvania and Virginia, 25,000,000; the whole Union raised 260,146,000 bushels in 1869.

FRUIT IN CALIFORNIA.

Attention has been called to an article published in San Francisco, which complains of the competition in grain production, and as it discusses for California the same remedy which I wish to point out for Michigan, its insertion here will be excused:

From the San Francisco Alta, December 23.

“We have learned by experience, and we might have known by reasoning without experience, that the production of wheat for exportation, not only cannot enrich our State, but, as conducted at present, cannot be permanent. The soil is being exhausted for the sake of a small and brief profit. Our agriculture depends mainly upon a staple which commands a low and unstable price, and brings us into competition with many other countries, and most of them comparatively poor. Cali-

ifornia ought to be above the necessity of competing with the inhospitable and half-wild plains of Russia and Minnesota.

"But we must have some exports with which to meet our exchanges, and wheat is, so far, the most available, and so it is the main item in our agricultural statistics. California is better fitted for producing wine, silk, fresh and dried fruits, nuts, olive oil, and other articles of the semi-tropical class, which command a much higher price per pound than wheat, with a greater yield, and little more expense to the acre. Our soil and climate gives us a natural monopoly of these things on the North American Continent, and it is questionable whether any part of any other continent can show advantages equal to ours, for growing the semi-tropical fruits.

"But we have not yet been able to change our agricultural base. Our farmers know more about wheat than about fruit, and can get returns from it much sooner; and, as many of them live from hand to mouth, they must grow wheat. Gradually, however, we are swinging round; the vine and mulberry, almond, olive, and orange trees are multiplying more rapidly than the wheatfields. As nearly every year sees a decided increase in the quantity, and an improvement in the quality of our still and sparkling wines, and of our raisins and dried figs and prunes, we are justified in expecting continued progress, which must give to the future a success higher than that which the present is able to attain."

THE LESSON TAUGHT US BY THE OLDER STATES.

There seems to be an absolute and imperative necessity for new industries. The old agriculture of Michigan, to save itself from ruin, must turn to new sources of wealth; must seek new branches of husbandry; must learn lessons of political economy from her more immediate and elder neighbors, Ohio, Indiana, and Illinois. The State of New York relinquished wheat production because she found it profitable and necessary to do so. The production of butter and cheese—the dairy products of that great State—have greatly grown in import-

ance. There has been the same change in Ohio. Illinois and Indiana are the successful producers of stock, and the history of Michigan, for the last year, shows that the production of wool, and the export of beef and pork now going on, and the product of her dairies have brought more money to her farmers than her wheat crops, valuable though they have been. It is this diversified husbandry which will prove her wealth and salvation, that we wish to encourage; and as a permanent industry, a perpetual source of revenue, a business which will employ thousands of honest hands, we take an interest in fruit culture. Not as an adornment or embellishment do we so highly recommend Pomology. If this was all, my limited knowledge of the art would keep me from the public view as an officer of a Pomological Society. But States must study their opportunity. If they have mineral resources, they must develop them and stand by them. Salt wells, magnetic springs, gypsum beds, forests of pine, are fruitless and useless when undeveloped.

No doubt the prairies of Iowa, tilled by labor-saving machinery, can outstrip the wheat fields of Michigan, but Michigan can beat Iowa in wool, and can ship her grain to market quicker and cheaper, in the shape of pork and beef, than can Minnesota.

These are the advantages to be cultivated and prosecuted with zeal and energy.

BENEFITS OF A VARIETY OF PROFESSIONS.

A new form of industry is a boon to the laboring millions. Fruit culture, as an industrial resource, ought to be hailed with pleasure and gratification. The advantages of any new production are manifold. A crowded occupation or profession begets competition, which brings on reduction of the prices of labor, and consequent want and poverty. If all men were farmers, there would be but few farms. Manufacturers, mechanics, commercial men, afford markets and consumers for the tillers of the soil, and they that manufacture do not

crowd the ranks of the agriculturalists. If all manufacturers should make one kind of fabric there would be no profit to encourage or market to beguile. In agriculture the same rule holds good, and mixed husbandry is best for all. Sheep, wool and mutton for some; stock, beef, and pork for others; dairy, butter, and cheese for those whose lands are adapted to it; grass and grain for all, sufficient to some for home consumption, to others to supply the markets at home and abroad.

This, it appears, is the character of the agriculture of Michigan—best adapted to her soil, climate and location. In addition to these, it is the object of the State Pomological Society to encourage and develop a new husbandry,—a new industry,—fruit culture. Not merely as an amusement or recreation; not only to beautify our homes and ornament our landscape; but as a food-producing, labor-employing, honorable occupation and business, and source of wealth. We seek to bring it forward as adding to the other industrial agencies which enable a people to procure food, to provide homes, to educate the youth, to erect charitable institutions, and otherwise build up a commonwealth of law and order, justice and morality, intelligence and refinement.

That statesmanship is the best and truest that furnishes for a people opportunities to earn an honest livelihood by multiplying the number of industries.

THE TRUE POLICY.

New England is great to-day, because her industries are great and manifold, and cover the wants as well as the luxuries of mankind. Even her agriculture is progressing, rapidly and hopefully, because she is surrounding it with kindred though separate and distinct husbandries. Her labor is varied, and therefore is not pauper labor. There is something for every hand to do, and consumer and producer are brotherly neighbors. Even in horticulture, New England sends us the best of apples, the best of grapes, the best of strawberries, and the best of pears.

The same policy which has made New England rich and influential, is just the policy for the West—for Michigan. We must study our own peculiarities, our own advantages, and work at them and bring them out. If wheat culture will not pay, alone, by itself, let us add something else to it.

THE MARKET ADVANTAGES OF A PENINSULA STATE.

There are many things to encourage the fruit culturists of Michigan, but chiefly I wish to note her market facilities. A State surrounded with lake ports and harbors, she offers peculiar advantages for the shipment of fruit. Across her borders there will soon be five gigantic through trunk lines of railroad, connecting the east and west lakes, and traversing the finest fruit sections of the State. These will be cut and crossed, very soon, by as many north and south lines of railroad, so that for inland facilities for transporting all kinds of produce, fruit included, no State can boast superior advantages. But her advantages for water transportation are also unexcelled. Very soon each and all of her lake towns will be connected with the great centres of western trade by regular daily lines of steam craft, especially adapted to the transport of fruit, which can best be carried on the water. For all time to come, Chicago will get a supply of fruit from St. Joseph and Grand Haven. The markets for Michigan fruit, strange as it may seem, are to be in the West and North and Northwest. Milwaukee is a growing market centre for Michigan fruit, and one of her local papers, the *Sentinel*, recently noticed this trade as follows:

“THE MILWAUKEE FRUIT TRADE.—It is surprising to consider the enormous quantities of fruits, both green and dried, which are annually consumed in the United States. Of late years, the imports of oranges, lemons, raisins, figs, and nuts, have increased so rapidly that the New York and Boston press have repeatedly commented on the consumption of such large quantities of “tropical delicacies,” which find a remunerative

market in our country. Our domestic fruit trade is of far greater importance to Milwaukee than that of foreign climes, for already our domestic fruits are becoming more popular, not only on account of such delicacies as strawberries, peaches, and apples being more palatable, and as medical tonics not to be excelled; but the cost of American fruits will eventually exclude the importation of fruits to any extent.

"The receipts of green apples at this port during the present year have exceeded double that of any previous year, and has been a source of surprise to many.

"One fruit-house of this city has received during the present year, the unprecedented number of 22,314 barrels of apples, principally from Michigan and New York States, all of which were forwarded on orders to Iowa, Minnesota, and Wisconsin. The location of Milwaukee, and her facilities for the transit of fruit from Michigan, should warrant the larger portion reaching our port as a distributing point. Michigan and New York State packers are beginning to realize that Milwaukee is not only the nearest point, but that the prices to be obtained, and the expense of handling are all in favor of this point. Beside, our communications west are superior to those of Chicago. If fruit-growers were generally aware of the facilities which Milwaukee warrants in the way of selling green and dried fruits, our city would become the principal fruit mart in the West. Another year will bring increased trade in this line of goods."

CONCLUDING REMARKS.

It will thus be seen that Michigan fruit has a wide field in which to seek its markets, and this consideration is of great importance, because fruit culture, as well as grain culture, needs for its success and support consumers as well as producers.

Especially does fruit culture need domestic consumers, and in this connection the increase of the home consumption of fruit deserves comment. The cheapness and plenty of American breadstuffs have made the Americans a bread-eating peo-

ple, it is said, to the detriment of the national health. The annual consumption of fruits, of late years, is estimated to be on the increase, and no one can contemplate the fact without satisfaction, for health and morals are involved in this change of diet.

At a recent meeting of the State Agricultural Society of Massachusetts, it was asserted that, in 1864, the value of but three other crops in that State equaled in value the general fruit crop, and those were hay, corn, and potatoes; and one of the speakers at that meeting declared that fruit, once regarded by many merely as a luxury, will hereafter be looked on more as a *necessary, healthful, and palatable article of food*.

Let fruit become the cheap dessert and food of the millions, adding a glow of beauty to the humblest as well as to the richest spread board of the land. For this and kindred humane objects the Michigan Pomological Society was instituted, and for this unselfish and humanitarian end its members have engaged to unite together.

FREE PROPAGATION.

DOES THE STOCK UPON WHICH A GRAFT IS SET, INFLUENCE THE
GRAFT?

BY BENJAMIN HATHAWAY,

Of Little Prairie Ronde. Read before the Pomological Society, January 2, 1871.

Of the ruth of the general proposition that the stock influences the graft, there can be no question to a mind trained to close observation upon this subject.

To what extent in any given case this influence is exerted, and how far it may be made practically available in horticultural operations, may not be so easily determined.

That the vigor of the graft is greatly dependent upon the vigor of the stock, can hardly be a matter of controversy. That a vigorous, strong growing variety, like the Northern Spy apple, will infuse something of its own vital force into a weaker growing sort, like the Red Canada, is not a matter of conjecture, but has been abundantly demonstrated.

This class of facts has been recognized and acted upon by all intelligent cultivators from time immemorial. The practice of dwarfing trees, as by putting the pear on the quince or thorn, or the apple on a less vigorous stock, as the Docain, are examples. In these cases stocks of less vigor than the graft are used for the purpose of retarding growth, as it has been observed that this condition induces fruitfulness, though no doubt at the expense of health and longevity.

Whether the size, color, and flavor of fruit may be affected by the character of the stock upon which it is grown, further

than results from increased or diminished vigor, is, perhaps, the main question at issue in this discussion. I am not aware that there have been experiments instituted for the purpose of definitely settling this point, though it would not be a difficult thing to do.

The results of my own observations and experience go clearly to show that the stock has an influence in determining every characteristic of the fruit. Although it is not always appreciable, it is often so manifest as to leave no room for doubt. Indeed, I do not see how it can be otherwise. Could we measure the vital forces of the stock and graft respectively, exerted under the changed conditions of a united instead of a separate growth, the question would be a simple problem in mathematics. As it is, we can only determine approximately the relative force of any two varieties in union, from observing carefully the results.

Probably some kinds of fruit, like the Rhode Island Greening apple, have so strongly marked an individuality, are of so positive and marked a type, that the variation from the influence of stock would seldom be appreciable; while in another variety, like the Rambo, for instance, that is easily varied by conditions, it would always be more or less apparent, and often very strikingly manifest; and I have not observed any other sort that exhibits so great variation from the influence of stock as this variety, in all the characteristics of size, color, and flavor.

In order to secure a positive and marked variation, the grafts must be set on trees of such age as to have established a character and individuality of some potency, and the stocks for experiment must discover strongly marked contrasts.

Yet this variety is not alone. I find those of a more positive character giving every evidence of variation from the influence of stock. The Northern Spy is one of these.

I have ten trees of root-graft Northern Spy, on which the fruit is always very nearly alike as to size and color, except

what results from the amount of fruit on a tree; while on forty trees of this kind, put on large seedling stocks, the variation is marked and constant. That is, some trees give more highly colored fruit than others, and do so from year to year without regard to amount of crop, and the same variation is found in size and quality.

I have one Northern Spy on Rhode Island Greening, that always gives me my largest specimens for the fairs, though of a pale color. Two trees, close by, grown on Esopus Spitzenberg, always give fruit highly colored, but not so large. These are only a few of the most noticeable examples that have fallen under my observation, in which marked differences in the fruit may be justly attributed, as I think, to the influence exerted by the stock.

The practical teachings of such facts as these are obvious. They point unerringly to the propriety and advantage of propagating a uniform class of stocks, to be grown from some one of our most hardy varieties, and of quality that is unexceptionable, upon which to work all our desirable kinds, and from my own experience I doubt if we have anything superior, if equal to the Spy for this purpose.

It may not be out of place to call attention to another agent that acts an important part, often, if not always, in determining the quality of our fruits. It is conceded that the character of the seed in which resides the germ of the future tree, is dependent mostly, if not wholly, upon those subtle aromal influences that are instrumental in the fructification of the blossoms. But few, however, have thought to attribute to this cause any portion of difference observable in the size, color, and flavor of different specimens of the same fruit grown on the same tree, and under apparently the same conditions.

The very existence of the fruit itself is dependent upon this agent, and that which is able to determine existence, must be all-powerful in shaping its character. I cannot doubt that many of the variations met with in our fruits are to be attributed to this cause.

I this year gathered a half-dozen apples from a Rambo tree, that were as completely russeted as any apple can be, and those were more crisp and firm than the ordinary Rambo apples—very like the Pomme Grise in quality, and no one would suspect from their appearance that they were not that apple. And I have seen many kindred facts that go to show that the subtle influence that effects fructification does not stop with that act, but is traceable in every stage of development of the fruit from the quickened germ to the ripened pulp.

And does not this view accord with all the known laws of generation in every department of nature? And while we may not doubt that the stock exerts often a very marked modifying influence in determining the character of the fruit, we must not overlook in our estimate the less obvious, but no less powerful principle of inflorescence.

FEBRUARY MEETING.

The February meeting was held at the Society's rooms, Fuller's Bank, Tuesday, February 7th, 1871;

The President in the chair.

The Secretary read the minutes of last meeting, which were approved.

THE DISPLAY OF FRUIT.

Very fine specimens of the Wagener, Northern Spy, Newton Pippin, Swaar, Jonathan, Cayuga Redstreak, Peck's Pleasant, Lady's Apple, Red Canada, etc., were shown by Messrs. Husted, Knapp, and other earnest, enthusiastic and intelligent fruit growers.

Opportunity was afforded members to test, in the most approved style, samples of Concord grape jelly, Transcendent Crab apple jelly, offered by Mr. Husted. Samples of the Iona and Diana grape, etc., presented by Mr. Bradfield, were rich and exquisite in taste; and Mr. Wm. Haldane, with a liberality which was fully appreciated, dispensed his celebrated Isabella wine, both sweet and sour, three years old, and pronounced by good judges to be equal to any native wine in the market. This was high commendation for the Isabella, which has not ranked at the head of the list of wine grapes.

COMMUNICATIONS.

The following letter from Dr. Nelson, addressed to the Secretary, was read:

NORTHPORT, Leelanaw Co., Mich., }
January 2, 1871. }

DEAR SIR:—I am in receipt of your circular from the Pomological Society, a society very much approved. I hope in the course of another year to submit to the Society speci-

mens or cuttings of figs, raised in our northern country by *out-door culture*. I obtained a cutting from Ohio in October, 1869. It stood the test of a very severe winter, and so far has done exceedingly well. I am also testing Allen's White Hybrid Grape, for out-door culture. Whatever may be the result of my experiments, I hope to report to you next season.

W. H. NELSON.

The Secretary exhibited a package of scions of Russian apples, which unfortunately were badly dried, received from Mr. Capron, Commissioner of Agriculture, and they were referred to the care and charge of the Secretary until grafting time.*

INCORPORATION.

Mr. Clubb, from the committee on an Act of Incorporation, reported that under the constitution of Michigan a special act of incorporation was not recognized, but the formation of all corporations must be under general laws; and the committee reported the following:

A BILL to provide for the incorporation of societies for the promotion of pomology, horticulture, and kindred sciences and arts in the State of Michigan.

SECTION 1. *The People of the State of Michigan enact*, That any seven or more persons, and their successors, that do now, or may hereafter associate together for the purpose of promoting the interests of pomology, horticulture, and kindred sciences and arts, may become a body corporate by complying with the requirements of this act.

SEC. 2. The persons intending to become a body corporate for the above named purpose, shall publish a notice of their intention to meet for organization, three successive weeks, in the newspaper published next nearest to the place where such meeting is to be held; said notice to state the object of the meeting, and when and where it will be held, and to be signed

* These scions were carefully kept in damp moss and earth, but were so badly shriveled that they were of no use when grafting time came.—*Secretary*.

by at least three of the persons interested in establishing said organization ; said meeting to be open to the public.

SEC. 3. The articles of Association adopted at the meeting provided for in the preceding section, shall specify: 1st. The name, officers, and objects of the Association. 2d. The limit of property. 3d. The limit of subscription of members. 4th. The name of the town, city, or village, and county, where the office of the Association shall be located. 5th. The town, city, village, county, district, or extent of the territory in which the operation of the society may be carried on, or to which they are limited.

SEC. 4. The articles of Association, duly acknowledged by each stockholder, together with a certificate signed by the Secretary, stating the amount of subscription paid in, must be registered in the office where the Association is located, in a book kept for that purpose, and a copy of the same must be forwarded to the Secretary of State.

SEC. 5. On complying with the requirements of this act, as above specified, the association so organized shall be a body corporate, and shall be capable of buying and selling real estate, in the same manner as the Agricultural societies [Chap. 54, § 6, C. L. of 1857]; of suing and being sued in any court of this State; may have a common seal, and may alter or amend the same at pleasure; shall be subject to the laws of the State applicable to Agricultural societies; may make such by-laws and regulations, not inconsistent with its articles or with this act, as may be found desirable to promote the efficiency of the organization: *Provided*, That the by-laws shall not exclude any citizen of Michigan from membership of the association, attending the exhibitions, or participating in its discussions, who shall subscribe and pay \$ a year to the funds of the society.

SEC. 6. Should an association for the promotion of pomology, horticulture and kindred sciences and arts in the whole State, be organized under this act, it shall be the duty of the

secretary of said State society to make and transmit a report of the transactions of said society, including copies of papers read at its meetings, reports of exhibitions held, and of facts collected by correspondence or otherwise, at the end of the month of December of each year; said report of transactions to be printed in similar form and number of copies as the reports and transactions of the State Board of Agriculture and State Agricultural Society, under the direction of the Secretary of State.

SEC. 7. District or county, town, city, or village associations organized under this act, are hereby required to report through their secretary, during the month of November in each year, to the Secretary of the State association, the proceedings of said society during the year, giving a statement of the facts elicited, and of the experience gained during the preceding year. Such reports from district, county, town, city, or village societies to be used as correspondence in compiling the report of the State association, provided for in section six.

SEC. 8. Associations incorporated under this act shall, on compliance with the requirements thereof, be entitled to all the immunities, emoluments and privileges accorded by law to the Agricultural societies of the State.

The report of the committee was accepted and adopted, and the committee was instructed to send the above draft to the Legislature, and respectfully ask its consideration by that honorable body.

DISCUSSION UPON GRAPE CULTURE.

Mr. Bradfield occupied about two hours in reading a most exhaustive and valuable paper upon grape culture, an abstract of which will be found in another column.

Mr. Mason L. Shafer of Paris, said :

“MR. PRESIDENT—The interest which is now manifested in the cultivation of the grape ought not to be allowed to flag through the non-success of our people in planting varieties unsuited to ordinary outdoor cultivation. Your society can

do much—all, in fact—to prevent this, by insisting that none but old, reliable varieties should be planted, and warring against all others, especially the much advertised kinds. I came near being led astray by the high-sounded praises of an advertised sort. But, thanks to its inferior appearance, and the high price asked for a quantity offered for sale, I escaped the harrowing aggravation which would surely have followed an investment in them.

“Without claiming to be authority, I unhesitatingly assert that the Concord, Delaware, and Clinton are the only varieties that should be recommended for general cultivation in this latitude. I am willing to risk any amount of discussion or criticism on the above assertion, well knowing that it will give rise to no little of both. Not that I would discard all others as worthless; on the contrary, for the sake of variety, as well as to secure some of the early ripening sorts, I would that every yard contained one or more of all the approved kinds. But we are speaking now for the masses who desire to possess themselves of the luxury of this delicious fruit, and who want those kinds that will *pay*, with the care that the ordinary cultivator is willing to give them. For the benefit of such, I would respectfully ask this society that it make all the different varieties a subject of general discussion, and after a thorough digest, vote on the question, viz: *What three varieties of grapes are best for general cultivation?* The standard of excellence to embrace the following requisites: 1st—Hardiness; 2d—Quality; 3d—Productiveness.

“Open the door to success by giving the people a knowledge of what to plant, and all will be rewarded in the rich harvest of substantial blessings that will continue to delight and benefit.”

GRAPE CULTURE.

HOW A PERSON MAY SECURE A SUPPLY OF THE BEST AMERICAN
GRAPES IN TWO YEARS.

AN ADDRESS BY EDWARD BRADFELD.

When I agreed to read a paper on grape culture at this meeting of the Society, I did not realize the fact until too late to retreat, that I was placing myself in the position of a minister, urging upon a congregation the necessity of repentance, when ninety-nine out of every hundred of his hearers were just persons who needed no repentance, and would only tolerate his remarks in the charitable hope that the one-hundredth poor sinner would be benefited. If that one-hundredth person is present to-day, and as badly afflicted with "Grape on the Brain," and as ignorant with regard to a remedy as I was six years ago, and the ninety-nine will tolerate my remarks upon the same principle, I propose to begin at the beginning, and show that person how he may in two years from next summer secure a supply of the best American grapes for himself and family, in proportion to the number of vines he may plant the coming spring, and double the amount afterwards.

I have no new theories to present, and shall only make such statements relative to propagating, planting, pruning, training, etc., as can be supported by my own experience and observation, showing where I have failed, and where succeeded, how I have succeeded, and why others, with equal facilities, have not succeeded.

TO COMMENCE ON A SMALL SCALE.

Avoiding all places where water is found within two or three feet of the surface, select a strip of ground from two to

four feet wide, and of any length, on the side of your dwelling, barn, fence, or garden walk, not shaded, and having, if convenient, a south-eastern aspect, as one hour of early morning sun seems to be better than two hours in the afternoon.

The evidence of this is that on the south-eastern side of my house, grapes ripen one week earlier, and are better flavored than the same variety on the south-western side, although the latter have several hours more sun through the day. To secure the best results, this strip of ground should be trenched to the depth of eighteen inches, or two feet. This is easily done by excavating a hole two or three feet square to the required depth at one end, and filling this up with the next three feet, thoroughly mixing in with the earth as it is thus inverted, enough well-rotted manure to make it rich, and so on to the end, filling up the last space with the earth taken out at the commencement. If the subsoil is clay or hard-pan, it would be better to remove entirely six or eight inches of the bottom. This would leave the surface of the border (as we will now call it), the right depth when settled, for planting the vines; the subsoil to be replaced with surface soil put on top of the border late in the fall. This trenching secures for the roots a supply of food, and immunity from the effects of excessive drouth.

In the spring of 1868, I planted some one and two-years-old vines, in sandy soil on a steep hill-side, previously trenched eighteen inches deep with the plow, assisted by three or four men with shovels. A coating of well-rotted manure was first spread evenly over the surface, and the trenching done by turning all the furrows one way, commencing at the top of the hill on the right hand side of the piece and striking a deep furrow from top to bottom, returning empty to go down again in the same furrow. The men are stationed at intervals, and as the plow passes each man the second time, he steps into the trench and throws up the loose soil left by the plow. We have now a trench eighteen inches deep, ready to receive

the next surface furrow, and it will be readily seen that a continuance of the operation described will invert the soil of the whole piece to that depth,—we never watered,—yet in spite of the excessive drought and scorching heat of that season, their growth was all that could have been desired. Some of the best bunches of the Iona, Isabella, and Adirondack grapes, I had the pleasure of exhibiting at the Pomological Fair in 1870, were taken from those vines thus planted in 1868,—four feet apart in the row, and the rows six feet apart, with clean culture.

QUALITY.

Plants produced from single buds are better than those from cuttings, for the following reasons, if for no other: The former being started in houses, with proper appliances, have from eight to nine months to mature, and the necessary transplanting secures a better supply of fibrous roots; while the latter, planted in the open air, and seldom starting before June, have only five months, and no benefit from transplanting.

In taking up some single buds to set out, five or six weeks after starting, I found most of them with two or three thread-like roots four or five inches long. These were pinched back to two inches before setting. Three or four of the best were left in the bed until fall; at that time the former had produced a mass of fibrous roots and canes from twelve to fifteen inches long, while the canes of the latter were twice that length; but the roots two and three feet long, were only enlarged continuations of the thread-like roots. All were root-pruned to about seven inches, and planted in the vineyard. If I am asked, "Would not the larger vines have done better without severe root-pruning?" I answer, "No." Five years ago I planted a three-years-old Delaware, with plenty of pipe-stem roots three or four feet long. One-year-old vines, planted at the same time, were far ahead of it in two years. The long roots not only die, but produce disease.

EARLY-BEARING.

Next to the best layers for early or immediate bearing, are two-years-old single-eye plants, that have been transplanted and root-pruned. After these, those of the same age, not transplanted; but for general planting, none are better than best single-eye one-year-old. After these, the best from cuttings that were root-pruned at the end of the first season.

CHARACTER OF THE VINES.

As success in grape culture depends very much on the character as well as the quality of the vines, the best are the cheapest, and can only be procured of reliable propagators, (who may not know whether the stock affects the graft or not, but who, realizing the fact that the health, vigor, and productiveness of the future vine depends on the character of the parent, act accordingly).

In 1865, several layers were taken from as many Isabella vines in a neighbor's lot. The portion of the wood laid in the ground was well covered in the fall with fibrous roots, and to all appearance the layers were A 1. They were carefully planted and grew vigorously, but not one of them have yet produced a good bunch of grapes. Their parents had been utterly neglected, and perhaps their grandparents; if so, how long will it take their offspring to recuperate? Will some one answer?

Other things being equal, it will be best to buy of propagators at home, patronizing those who have acquired a reputation, but avoid as a rule, vine and fruit-tree peddlers, who professedly represent eastern nurseries, by procuring at a very low price their refuse plants and seedling fruit trees, deceitfully labeling them to correspond with the varieties they had previously sold.

Mistakes as to varieties will sometimes occur, and are excusable, but what excuse is there for a person selling a dozen vines, marking three Delaware, three Diana, two Rebecca, two Concord, and two Clinton, when he knew he has nothing but Clintons in his nursery; or for selling two hundred early and

late Crawfords, knowing at the time (what the purchaser to his sorrow learned, after waiting three or four years), that with the exception of two or three, all were worthless seedlings. Men have been imprisoned for lesser crimes. If I am severe, it is because I have suffered, but not from any member of this society, and none need take offense. Millers, you know, are proverbially dishonest, but there are exceptions to all rules, and I claim to be an exception. Friend Husted, and all other honest propagators can do the same.

PLANTING.

Having obtained good vines in perfect order, the next step is to plant them in a proper manner. We will first plant *one*, having in view a single tier of arms, with vines eight feet apart in the row. As the planting and pruning of this will, with some slight modifications, be a guide for the rest, we will, for reference, call it No. 1. Supposing the border to have been filled up level with the surrounding surface, dig a hole four feet from the end, eight or ten inches deep, and about eighteen inches in width, leaving the bottom convex, or about two inches highest at the center; the earth taken out should be left convenient for filling up the cavity in the fall. As we propose getting grapes in two years, we shall have to trench the border and plant the vines this spring, and as the subsoil will not have become fertilized, it will be necessary to use a peck or so of rich surface soil to each plant. Spread half of it over the bottom of the hole, set a stake five feet long an inch or so back of the centre, take out one vine, and no matter how long the roots are, cut them back with a sharp knife to six or eight inches, and the stem to two buds, place it in front of the stake, spread the roots out evenly in every direction, and cover them with surface soil. This should be done quick as possible, for one minute's exposure of tender roots is a drawback to the vine of a week or month. Enough of the soil first taken out should now be put in to level up the hole two inches above the crown of the roots, and moderately

pressed down. If an inch of well-rotted manure is spread over this it will be beneficial, especially if it should become necessary to water the plants. This covering will keep the surface from baking.

TRAINING AND PRUNING.

Only one shoot should be allowed to grow the first season. This should be kept tied to the stake ; the side-shoots, or laterals, after making four or five leaves, pinched back to within one bud of the main stem, and repeated as often as the bud left has made a like number of leaves, always leaving one beyond or forward of the last stopping, the object being to develop one well-ripened cane four to six feet long. If you succeed in doing this by next fall, you have laid the foundation of success; and it *can* be done every time with good two-years-old vines. Pinch off the top of the cane early in September; this will check the upward growth and mature the wood, and soon as the leaves fall fill up the hole with the earth taken out in the spring. The roots are now, while tender, protected from frost by a covering of eight or ten inches of soil,—one of the advantages of originally planting below the surface ; another, the protection the sides give the young shoot; and another, the additional tier of roots produced next season between the original ones and the surface of the ground.

Cut the cane back to within about fifteen inches of the ground, bend the stem carefully down and cover with a few inches of soil, for vines that can withstand the severity of our winters after becoming mature, are often seriously injured while young ; hence, it is better thus to protect them, at least for two or three years after planting, and where practicable, its continuance would be beneficial both to vine and fruit.

If from any cause the first cane produced is a feeble one, and not more than two or three feet long, it should be cut back to two well-developed buds, and the earth that is put in to fill up the hole in the fall should be taken out again in the

spring. We must grow one *good* cane before attempting to grow two.

We will suppose all our vines have made a good growth, were planted eight feet apart for one tier of arms, each cane cut back to five inches, the stocks bent down and covered with earth like No. 1. The stocks are to be straightened up in the spring, tied to the stakes, and only the two upper buds should be allowed to grow. The two canes produced from these buds will likely set three bunches of grapes each, but for the good of the vine, better remove all but two. The canes are to be treated in every respect like the one of the preceding season until the leaves fall, when they are to be shortened to two or four feet, as their strength may warrant,—we will say four feet. The stocks should now be bent down and the canes covered with a few inches of earth.

Soon as the frost is out of the ground the following spring make the trellis. This may be done by driving or setting posts four inches square and four and a half feet long, eight feet apart, with their tops three feet above the ground. To these posts nail two bars or strips of wood three inches wide, one at the top, the other near the bottom, with the under side about twelve inches from the ground. Some advise horizontal wires, but having tried both, I prefer the former, with small perpendicular wires twisted round the upper and lower bars to support the canes.

The stock should now be fastened to the lower bar, the two canes bent down in opposite directions and secured to its upper edge. The buds on short-jointed varieties will be three or four inches apart. All the lower ones may be rubbed off, retaining the upper ones, twelve or fourteen in number, to produce as many canes, each one bearing three bunches of grapes. The upright canes should be kept loosely tied to the wires, and their ends pinched off when they have made two or three leaves beyond the last bunch of fruit, and the laterals stopped as in young vines. We are now in the second year

from planting, and our two-years-old vines produced about forty bunches of grapes each. At the end of the season the bearing canes are to be cut back to two buds, the arms and stock cut loose from the trellis, laid down, and the arms covered with earth. The two buds are allowed to grow next season, producing two canes, bearing three bunches each. Our vines are now complete, each one having from twenty-four to twenty-eight canes, and bearing from seventy-two to eighty-four bunches of fruit. To prune for next season, cut the spur off just below the base of the upper cane, and the lower cane back to two buds.

For two tier of arms, plant as No. 1, giving the vines same treatment as for one tier, with the following exceptions: They are to be planted four feet apart in the row, and if more than one row is contemplated, the rows should be seven or eight feet apart; and, instead of cutting all the first canes produced, back to fifteen inches, every alternate one is left three feet long, the two upper buds of which are to produce canes for the upper tier of arms. The posts of the trellis should be set six inches deeper, and stand eighteen inches higher above ground, with a third bar at the top.

If the intention is to cover a trellis eight or ten feet high, on the side of a building, with foliage and fruit, the vines should be planted two feet apart in the row, and far enough in advance to allow at least six inches between the trellis and building. But why plant so many vines, when one will cover the side of a building? We will answer that question presently. Commence by planting No. 1 in front of the post at one end of the trellis, which we will suppose is twenty feet long, with five bars, and to be occupied by ten vines, to be treated as those previously described, until the first strong canes are produced, when numbers 1, 5, and 9 are to be cut back to twelve or fourteen inches, and numbers 4 and 8 to three feet. Only the two upper buds of these are allowed to grow next season, to produce canes for the two lower tiers of

arms. The remaining canes not being long enough to take arms for the two upper tiers, must be cut back to within two or three feet of the ground, and in order to produce a good strong cane eight or ten feet long, only the upper bud on each should be allowed to grow. To prune for the next season, the canes for the lower courses having all grown strong, are to be cut back to within four feet of their base, to be laid down for arms, the left hand cane of No. 1 fastened to the post opposite the second bar, the remaining two feet bent down to meet the arm of No. 4. Of the single canes for the upper courses, Nos. 3 and 7 are to be cut back to within five feet of the ground, and Nos. 2, 6, and 10 within seven feet. The two upper buds are to produce canes to be laid down for arms. It will be seen that the arms of 7 and 8 do not fill up the trellis. The deficiency of No. 8 may be supplied by laying down two feet of the fruit-bearing cane at the end of that arm, and of No. 7 by allowing No. 10 to produce four canes; two of them about two feet below the upper ones, to be cut back to two feet and laid down on the third bar.

No superfluous shoots should be permitted to grow on any part of the vine. The laterals and bearing canes are to be stopped, and the subsequent pruning done as before advised; and if all the requirements have been complied with, we shall have, when in full bearing, a trellis of vines bearing in round numbers eight hundred bushels of grapes,—not *nubbins*, but BUNCHES,—and it is claimed by those who ought to know, that vines treated in this manner will continue in bearing fifty or one hundred years,—a partial answer to the question, “Why do you plant so many vines?” A further answer is, that vines are now comparatively cheap, and six will furnish a supply of grapes of better quality and several years sooner, than one will. Still further, I venture the assertion that there is not in Michigan a grape vine ten years old (and I doubt if five), covering an area of perpendicular trellis, ten feet square, that bore a crop of fruit from bottom to top last season.

There are several methods of training and pruning. I know of but one more simple, and *none* productive of better results than the one we have been considering, unless we make an exception in favor of laying down only two feet of an arm in one season, to be continued the next by cherishing the cane at the end of each arm, pruning to two feet, and laying them down horizontally, at the end of the season. It is claimed that this method will insure permanency. I have generally practiced it, and from my limited experience am inclined to favor it, unless the arm cane is very vigorous.

Sometimes two tiers of arms are formed from one vine, the single cane being cut back; three of the upper buds are allowed to grow, producing three canes, two of which are cut back to four feet and laid down for the first tier; the other is cut back to two or three feet, the two upper buds producing canes, to be laid down next season for the other tier. This is objectionable, for the reason that the sap passes more freely into the upper branches, supplying these at the expense of those below. The fan system is still more objectionable for the same reason, and the renewal system, if there was no other objection, is, with one *exception*, too complicated.

For that *exception*, the vines are planted ten feet apart in the rows, and the rows from ten to twelve feet apart. To prune for this system, we will take vines that have produced their two upright canes; the right hand canes are all cut back to five or six feet, laid down and fastened obliquely to the trellis, every bud being allowed to grow; the left hand canes are all cut back to the two lowest well-developed buds; only the lower one is permitted to grow in the spring; the laterals are all to grow unchecked except to keep them within bounds, and the shoot is encouraged to produce all the wood possible, the object being to cover five feet of the trellis with bearing wood for next season; the alternate pruning is done by cutting back the right hand portion of the vine to one bud, or better, to the first cane, and that to two buds, allowing only

the lower one to grow. The reason for pruning to two buds, when only one is to grow, is to secure the safety of that *one*, as the bud next the end is often destroyed by the wood changing bark. And here, let me remark, that the instructions previously given were in view of protecting the vines in the winter. If they are not so protected, one or two buds should in all cases be left above those we wish to grow. If the others start, they are easily rubbed off, and the surplus wood removed in June.

The renewal system above described has simplicity of pruning to recommend it, if nothing more, one or two strokes of the knife being sufficient; but for every twenty-five feet of trellis occupied by bearing wood, we require one hundred feet of ground, while only thirty-five feet are required for arms and spurs. I am testing it with a few vines, not anticipating any great results.

There is a system of oblique arms, recommended by Mr. Fuller, as being more convenient for laying down in the winter. The vines are planted three feet apart in the row and the rows six feet apart. One strong single cane is first produced, trained obliquely to the trellis at an angle of forty-five degrees, cut back in the fall to five feet, laid down by the side of the trellis and covered with earth, to be taken up again in the spring and tied to the trellis at the same angle as before. Five or six buds are selected for the bearing canes, and fastened to the perpendicular wires in the same manner as with horizontal arms. But the following modification of the above system is better, being quite as convenient for laying down, and better adapted for equalizing the flow of sap. The vines are planted from four to eight feet apart in the rows. For the slower-growing varieties, with my present experience, I prefer four feet, or if planted at a greater distance, I would take two seasons to complete the arm, by first laying down three or four feet, cherishing the end shoot on it for a cane, enough of which is to be laid down the next season to extend the arm to the

required length. Only one cane is allowed to grow from each vine, and as these will not be strong enough for our purpose the first season, they should be cut back to within two feet of the ground for stalks, or perhaps better, to within two buds of the old wood near the ground. Each vine should produce one strong cane from eight to ten feet long the next season. These are shortened to about six feet in the fall, laid down by the side trellis, and covered with earth. In the spring raise up the cane to an angle of about thirty degrees, and tie it to the lower bar of the trellis, which should be about one foot from the ground; this with the angle will take nearly two feet of the cane, leaving about four feet above; this is to be bent down (not too abruptly) and fastened to the bar, so that the end of the arm will be a few inches the lowest. When from the nature of the ground the line of the trellis is not horizontal, the arms should all be laid in the descending direction.

Uniform productiveness to a great age, uniform bearing canes, uniform bunches, and uniform fruit of the most delicate flavor it is possible for the variety to produce, are characteristic of the best vines, and that system of pruning and training which effectually secures these in the most simple manner, must be the best, whether with one or two arms, long or short. It should always be borne in mind that the tendency of the sap is upward, and to the end of the horizontal arms; that to check this tendency and equalize the flow of sap so as to produce uniform canes, it is necessary to elevate one portion of the arm and depress another; and if from any local cause one shoot, or more, should get much ahead of the others, it will continue the race with accelerated speed, unless checked by pinching off the top after it has made five or six leaves. The sap will be flowing past the weak to the support of the strong.

Through my ignorance of the above facts, the pruning and training of the first two hundred vines planted in my vineyard was a decided failure. The ground descended two ways, and the

line of the trellis was of necessity up and down the hill. I had succeeded finely with two arms in my garden, and soon as the vines in question had produced two canes they were cut back, laid down in opposite directions, and fastened to the lower bar of the trellis, one arm forming an acute, and the other an obtuse angle. The result was, the former, or ascending arms, produced strong canes, while those produced by the latter, or descending arms, were very feeble. To remedy this, the ascending arms were all cut away, and the descending arms extended to fill the vacant space. The lesson taught me by the failure was this: Unless the shape of the ground is such that the trellis bars are *nearly* horizontal, vines with only one arm are more easily controlled than vines with two.

The reason why some persons don't succeed in growing grapes, is not so much a want of knowledge on the subject, as neglecting "to *practice* what they know." They see them at their neighbors, eat of them, declare grapes are the best fruit ever grown, will have them growing on their own premises; —yes, next spring they will plant a dozen vines. They are told how to do it, and they do it well; examine them in a week or two; yes, the buds are starting, the vines are all alive, and we shall soon have grapes of our own; but, alas for the poor vines! This is the last thought given them, until ripe grapes in the fall hanging on our neighbors vines remind us of the neglect of our own. We examine them, and instead of finding a good cane four or five feet long, as we ought to, we discover on the ground, covered up with weeds, two or three shoots and as many suckers, none of them being more than a few inches in length. We are discouraged; give it up; and whenever the subject is afterwards introduced, say we are very fond of grapes, but don't know how to raise them! This is not a fancy sketch; but founded upon facts that have come under my own observation. I will give one or two, among many, in corroboration:

HOW SMITH RAISED GRAPES.

About five years ago, among those who joined in a club to procure Grant's seedlings and other vines, was a man we will call Smith. This Smith got a half dozen extra vines, had a border made on the side of his dwelling, and employed a friend to do the planting. This friend gave him instructions relative to pinching, pruning, etc., and knowing Smith was very fond of grapes, and quite energetic, had no doubt of the result.

The next season, when other vines procured at the same time were ripening their first crop, the planter called to see Smith's. Smith very reluctantly led the way to the side of the house where the border was, and began kicking the weeds and grass in search of something. Presently he looked up and very innocently asked: "Was it not somewhere about here they were planted?" It is needless to add, Smith did not get a supply of grapes in two years from planting, nor has he to this day, and never will until he gives as much care to a grape vine as to a hill of corn. He can do almost anything else, but he can't grow grapes.

"Jones" planted some at the same time, but for the same reason, there is not the vestige of a vine left to show where he planted them.

THE BEST VARIETIES.

It strikes me that in recommending varieties of any fruit for cultivation, we should give the facts on which we base our recommendation. The Society can then collate those facts, and advise the culture of those varieties best suited for different soils and localities. In view of this I submit the following:

First. Hardiness. The best varieties of grapes will do better if protected in winter. Iona, Delaware, Catawba, and Concord vines, not protected, have never born half as much fruit in four years as those of the same variety laid down every winter.

Second. Productiveness. By this, I mean the vine that most uniformly sets and perfects its quota of bunches, whether

it be the smaller varieties, as Clinton and Delaware, or the larger varieties, as Concord, Hartford, Iona, etc. In this respect I place Delaware, Iona, Union Village, and Hartford at the top of my list, and estimating the product by weight, my experience with the Iona for the past four years, on the flats of Ada, with prairie soil, and on the hill with sandy-loam and clay soils, compels me to place it above all, not excepting the Clinton or Concord. This success of the Iona in one locality does not prove it to be the most productive variety. The Concord and many others may far excel it in this respect under other circumstances.

Before planting, a light coating of manure was spread over the surface and cultivated in. The vines were planted about the middle of May.

GOODNESS OR FLAVOR.

While there are a great variety of tastes, nearly all pronounce the flavor of the Delaware perfect. Still there are some who prefer the foxy flavor. Such can gratify their taste by planting Hartford, Concord, Blood's Black, Northern Muscadine, Quinabog, and a host of the same sort, while those who, like the speaker, detest that foxiness, will find gratification in planting Iona, Isabella, Delaware, Adirondack, Diana, Eumelan, Rebecca, Allen's Hybrid, and the earliest of Rogers, and in some place where they couldn't rob other vines, I would plant Clinton's. These are all sufficiently early, and good as the best, but I would lay them down in winter. But for a high trellis, where this is not practicable, I would (in view of the fact that many large Isabella vines were killed last winter) plant Martha for white and Concord for black. Delaware and Iona might do for the lower two tiers, but the rampant growers above would starve them.

MR. HALDANE'S ISABELLA.

The "foundation of the city" and the march of civilization are sometimes reckoned by the age of Mr. Halden's grapevine, located on the corner of Justice and Fountain streets. Its

growth, quality, and productiveness are known in all the regions roundabout, and the appearance of Mr. Haldane, with a suspicious-looking package, at this meeting, was taken as an evidence that he was going to talk "Isabella." Consequently Mr. Haldane was asked to give the merits of that grape. He said he procured the root of his large vine, twenty-five years ago, in Ada, of Esquire Rhodes, and it has been in bearing twenty years. His soil was a clay soil. Had cultivated other sorts—the Delaware, the Concord, the Hartford Prolific, the Israella, the Iona, the Sweetwater, and others—but preferred the Isabella to all. It requires less care, and is not subject to the diseases that afflict other kinds in this locality. With him, as a wine grape, the Isabella had been a great success, and to connoisseurs, either for flattery or from some other cause, had pronounced his wine as good as any domestic or foreign wine of the same age. The vines occupy one-third of his lot, which is sixty-six by one hundred and ten feet in size, and now by the grading of the street, is quite altitudinous. The average yield has been worth from \$250 to \$300 per annum. This included the amount sold, the amount consumed at home, the amount given away, and the amount of wine annually made. He had kept no account of the income, for he valued it most for the use of family and friends. But for the last ten years it had never failed of an annual crop—making the income for that time \$3,000, saying nothing of the interest. He did not hesitate to recommend the Isabella for this section in preference to any other kind—but always with this proviso—that it should be protected from north and west winds, both summer and winter, and with full exposure to the sun, without obstruction from trees and shrubbery. He had but one hobby, and that was in planting the grape. Planting was of the first importance. Dig deep but plant shallow; fill the trench with grass, sods, chip-manure, bones, horns, and hoofs, within one foot of the surface, then plant good roots on the top with good, but not extra rich garden soil; mulch in

the fall with cow-stable manure and rake off in the spring, and if the vine does not make a good growth the first year, it better be thrown away than to occupy the ground to the exclusion of a better one.

Trimming and pruning was done in the winter and spring, and he thought a part of it should be done when the sap flows. The reason why grapes do not perfect themselves, having many green bunches, is that too many bunches are allowed—and they should be thinned out. If we do not attempt to grow too many bunches we should have what we do grow fully ripe.

Mr. Husted—It is in the nature of the Isabella not to perfect some of the grapes on a cluster—and Mr. Bradfield said this was common with other varieties. When asked how deep a trench should be dug for planting the grape, Mr. Haldane replied, “seven feet”—an answer which created some sensation. But planting was his hobby; he was convinced that success was in planting. He would not thank a man to set more than one and a half vines in a day! You set shallow and the vine may produce a few years, but dig deep and fill with turf, and the vines will last and bear for a century. He should make the greatest expense of grape culture in the planting. Grapes planted on deeply prepared soil would do better in a dry season. He would not throw very rich soil over the sod.

Mr. Bradfield—Is not sod the richest soil you can get, anyway?

Mr. Haldane—It is a great deal better than manure. In trimming do not be afraid to thin out. Thin out the bunches; the fruit will grow larger and ripen quicker. I would have the vines bear from six to eight or ten feet from the ground. My experience shows that grapes grown too near the ground are more liable to mildew, and that grapes grown on roofs, etc., are hard to pick as we grow old.

Mr. Fuller—Does the Isabella ripen every year?

Mr. Haldane—Yes, mine has with one exception,—in 1869 the season was bad. A grape is thoroughly ripe when the stem begins to shrivel. To keep well, grapes must be thoroughly ripe.

Mr. Fuller—It has been stated that we seldom eat a ripe grape. Ripe grapes are seldom seen in the market,—they are picked before the stem shrivels.

Mr. Haldane—The earliest grape is the Hartford Prolific. The Delaware is no earlier than the Isabella with me.

Mr. Bradfield—The Adirondack is the earliest with me.

Mr. James D. Husted—We regard the Hartford Prolific the earliest. The Ives' Seedling is the next. This is a very promising early grape. They remain on the stems and keep remarkably well. The Delaware with us usually ripens a little after the Hartford Prolific. I think the Delaware a valuable vine where you want a first-class grape for your own use. It should be thinned out oftentimes, at least two-thirds. It requires more vitality to produce seeds than pulp, and by reducing the number of bunches you get much larger fruit. This holds good with all fruit. Grapes, when about half grown, remain the same size for several weeks,—they are then perfecting their seeds. Vines when laid down in the winter will bud out much more rapidly. Those not covered will be very tardy in their growth and more scattering. I think it pays well to lay down young vines in the winter. Our young vines are trimmed to stakes, and in the fall we pull out the stakes and lay the vines on the ground. They get much protection from the snow. We prune closely, but not quite so severely as some recommend. I think it better to use the trellis, for general culture. Vines should be planted eight feet apart, and be allowed to grow from six to eight feet high. There should be a good share of leaves left to perfect the fruit. Destroy the leaves and the grape will not ripen. The Concord is the most valuable, reliable, and profitable grape for this section. In dry weather the Delaware fails. The Isabella we regard as very

valuable, but for field culture we cannot recommend it. Where it gets the protection of walls, and gets extra heat of the sun, it does well. It is an excellent keeper.

Mr. Clubb inquired whether unripe grapes would not make good jelly.

Mr. Husted—Yes, it is so with all other fruits; they make jelly best when a little green, and grapes are no exception. In regard to the Iona,—it is a very fine grape,—its quality is superior,—but our experience is sadly against its value as a producer. We purchased sixty vines at \$3.00 per vine, and we found them very tender. The sun scorched the leaves around the edges, and the wood was green and unripened. They grew beside the Clinton, the Hartford Prolific, and Isabella, and they have always failed. We have spent \$200 for vines of the Iona, and have had only two good bunches and about a dozen inferior ones.

Secretary Linderman—From my experience in growing the Iona vines, I am satisfied that the future hardiness, thriftiness, and, of course, the prolificness of the future vine, depends to a very great extent upon the quality of the wood used in its propagation. I bought, when Iona vines were very high, a few which I knew were grown from forced and immature hot-house wood. Some vines I have myself propagated from strong ripe wood, are, although two years younger, with no better care, the best of the two. I think this reason, if applied, would explain the failure of so many vines and the success of others of this sort. For a long time vines of this variety were very high priced and the wood scarce.

The President asked if any one would recommend the Catawba for general culture in Western Michigan.

Mr. Husted and Mr. Bradfield—We do not; the Catawba will not ripen in this section except in such seasons as that of 1869, which was an extraordinary one. The Catawba is the Kelly Island grape.

MARCH MEETING.

The March meeting was held at the Society's rooms, Fuller's Bank. The President in the chair.

The Secretary read minutes, which were approved.

Many were in attendance both from home and abroad, and several new members admitted.

PROSPECTS OF THE PEACH.

Mr. Husted—The prospects on high grounds in the vicinity of Lowell is fair for a good crop of peaches. On low, soft lands the crop is not promising.

Mr. Bradfield confirmed Mr. Husted's statement in regard to high land, and that it was the same near Ada.

Mr. Barclay—In Ada, on high land, peaches are doing good. About one-half the buds are killed, but there will be a good crop.

Mr. Scott—On bluffs west of the river the buds were very much swollen in the fall, the germ being visible with the naked eye. They appear good and sound now.

A. T. Linderman—I examined early in winter, and peach buds east of the city were mostly destroyed.

Mr. Hugh of Adrian—On high lands buds have perfected sufficiently to warrant a crop.

H. S. Clubb read the report of the condition of peach buds from the report of the Spring Lake convention, already published in the *Herald*.

A letter was read from I. S. Linderman of South Haven, stating that fruit buds are all right so far for a heavy crop.

DEATH OF HON. SANFORD HOWARD.

The President read a letter from Hon. Sanford Howard, written the previous week, and said: I am pained to have to announce the death of Hon. Sanford Howard, which occurred at Lansing on Friday, the 10th inst. Mr. Howard had promised to deliver an address to the State Pomological Society, but now he has left, I trust, for a still better land.

The President read extracts from Prof. Winchell's pamphlet on the

CLIMATOLOGY OF MICHIGAN.

The January cold of both peninsulas—the upper and lower of Michigan—especially in the vicinity of the lakes, is much less than that of Wisconsin, Iowa, and Minnesota, in the same latitudes, at a distance from the lakes. Muskegon, for instance, has a January temperature four degrees higher than Prairie du Chien, both being on nearly the same parallel. Grand Haven and Port Huron are five degrees above Milwaukee, all being on the same parallel, while Detroit is six degrees above Dubuque in winter temperature, and ten degrees above Fort Dodge, the difference in latitude between the three places being very little.

These advantages are great. Farmers and economists will readily perceive them without any enumeration. But, after all, the most striking differences are shown in the record of extreme cold, which prominently attests the beneficent influences of the surrounding bodies of lake water. Extreme cold at Milwaukee is fourteen degrees below extreme cold at Grand Haven! This is the difference that distinguishes between a fruit-bearing region and one in which fruit fails.

There is another fact which intending settlers would do well to bear in mind, and which Michigan people, corresponding with friends in other States, should make a point of: “The growing season begins at Grand Haven three to six days earlier than it does at Milwaukee, and continues five to eight days later in the autumn. A still greater contrast exists

between Grand Haven and localities farther removed in the interior of Wisconsin."

On motion of Mr. Fuller, Senator Ball was requested to furnish additional copies of the pamphlet for the Society.

SMALL FRUIT BASKET.

J. A. Watson, of Grand Rapids, showed samples of the berry basket he is manufacturing. The basket is square, and largest at the bottom. It is made of elm veneer and black ash hoops. The cost, \$9 @ \$10, was considered an objection.

EXHIBITION OF APPLES.

G. W. Dickinson, Grand Rapids, exhibited a fine assortment of apples, and made the following remarks in relation to them : The Fall Pippins are perfectly sound. The Vanderveer is not a long keeper, but this year it has kept well. Not a very common apple. It is a constant bearer. Tart, like the Greening. The original Rhode Island Greening cuts white and is tart. The Holland Pippin is sometimes called a Greening, but the tree is different, being higher and more upright. They do better with me than the Greening. The Baldwin is somewhat yellow flesh. An apple for name was referred the committee.

The President—Tell us the best for general cultivation.

G. W. Dickinson—The Baldwin, the Rhode Island Greening, the Holland Pippin, the Vanderveer, and Peck's Pleasant.

Mr. Husted also exhibited a fine assortment of winter apples, and made some remarks.

A. T. Linderman—What, if any, is the difference between the Red Canada and Steele's Red ?

Mr. Husted—They are identical. The Swaar is a very desirable table apple, but it is slow in bearing, and is apt to blow over. The Cayuga County Redstreak is a very fine apple, but has objections. Rawl's Jennette is a great bearer; blossoms late. The Jonathan is also a great bearer; but the fruit of both is too small for a profitable market fruit. The Roxbury Russet is good. The Yellow Belleflower is good as a fine

fruit, but it is not profitable for market. It does best on light soil. The Baldwin we retain among the varieties we recommend. It varies in character more than any other fruit, according to the soil in which it is planted. Peck's Pleasant is a desirable apple. The Esopus Spitzenburg is a valuable apple, but the tree is tender, and on the whole not to be recommended as a market apple. The Golden Russet is a good winter apple. This apple does well buried. It keeps it from wilting. The Northern Spy is a great favorite, and is increasing in favor. It is tardy in coming into bearing. The best fine market varieties are the Rhode Island Greening, Northern Spy, Golden Russet, Baldwin, and Wagener. The Wagener is higher colored on light soil than on heavy soils. The Wagener will keep sound till August.

CRAB JELLIES.

Mr. Husted—I have some jellies from the Transcendent Crab. It is quite an ornamental tree for fruit yards. Here is jelly from the old red crab; makes a thick jelly, although not as good a flavor, perhaps, as the Hyslop.

E. Johnson, from Walker, exhibited some Dominie, Red Canada, and Swaar apples, and asked for a name for one kind.

GRAPES—WINE-MAKING.

The President said: It is expected that we take a vote in relation to the grapes we recommend for growth in Western Michigan, but I doubt the propriety of this, except in one or two varieties. The Eumelan, the Hartford Prolific, and Iona, and even the Isabella, I doubt if we can recommend them. I could vote for the Concord and the Delaware, and that would exhaust my voting to-day. Prof. Agassiz made the following remarks in reference to wine-making:

Professor Agassiz—I was born and have lived two-thirds of my life in a grape-growing country, and I feel deeply interested in the question, how the grape shall be grown here successfully. But I think it cannot be grown with perfect success until a prej-

andice which exists throughout the whole country is overcome. It is because I know that it is a prejudice that I would openly speak about it. Wine-growing countries are the regions where temperance prevails,—where there is no drunkenness. There are countries where the traveler is helped to a glass of wine to warm and strengthen him; they are countries where the clergyman holds it to be an act of charity to give a glass of wine to him who needs comfort. That is the character of wine-growing countries. Here, the use of wine is considered a sin, and men who use it are considered men not deserving to be in the company of gentlemen. Now, I will say, that before I came to this country, now twenty years ago, I had never taken a glass of water over a meal in my life; and I will say another thing, that as long as I have lived (and I am sixty) I have never been flushed by the use of wine; I will not speak of drunkenness. I know that my mother gave her children (myself among the rest) wine as soon as they were weaned, and I know that I have done the same with my own children. But, gentlemen, until you have overcome the prejudice which exists throughout the country against the use of the pure juice of the grape as a daily beverage, you will never bring the cultivation of the grape to its right foundation, and you will not receive from that crop the return you are entitled to obtain. In countries where the grape is cultivated as the principal crop, the product from the sale of the grape is not the chief reward for the culture; it is the wine. And you will not be thoroughly successful; you will not have that variety of grapes; you will not have those diversified modes of cultivation, which will secure its production on a large scale, until you have introduced the use of wine as a daily beverage in every household, and as the most wholesome beverage that can be added to any other manufactured article of food. I wish not to be understood as saying that the use of liquor is a thing uncommon in wine-growing countries. It is only in those places where wine cannot be had cheap that brandy or alcohol in various shapes

is taken as a substitute. That is not what I advocate. The evil results of the use of distilled liquors I know as well as any other man. I do not suppose that I need to insist upon that in order to justify the remarks I have made in reference to the use of the unadulterated product of the grape in the shape of pure wine.

I am a temperance man ; I believe in it and practice it. It is a question to which we have got to look. If we grow the grape we have got to come to the wine question.

Mr. Bull says : " You have had testimony to that effect from gentlemen who must be accepted as authority in this matter. In the work I have quoted, Denman's work on " The Vine and its Uses," there are abundant quotations from eminent travelers, physicians, and others, in wine-growing countries, all going to prove that where the vine is found in most abundance, there is no intemperance ; that the people are healthy, temperate, thrifty, and cheerful. A clergyman of this State, who passed two years in France for his health, going all over it, for the most part on foot, told me that in all the wine districts he found temperance, but the moment he got in those districts where the grape could not be grown, where they drank beer, and brandy distilled from the potato and from beet-waste, there he found intemperance immediately. And that is the universal testimony. Now, all the world will have stimulants for necessity ; for debility arising from sickness, or age, or that form of disease—if it is a disease—dyspepsia, where you cannot digest your food. Physicians prescribe stimulants, and until an abundant supply of wine is made, these noxious drinks will be used. It seems to me that it is not only better for us to use wine, but better for the cause of temperance. I believe that, and I have acted upon it. My cellar is full of wine. I will not sell it against the law. If the law never permits me to sell it, it will stay there until my friends help me to drink it. I might have received as much money, perhaps more, for my fruit upon the spot, but I thought I would work out the

problem for the benefit of the State, and for the benefit of temperance. I was once an ardent temperance man, and believed and said that spirits should never be used by anybody, sick or well. I believed it, honestly, and I urged it upon our people. By-and-by I fell sick myself, and my physician said, "You must take spirits with your dinner." I objected; said I could not do it; that I did not believe in it; that I had always preached the other doctrine, and I would not do it. I did not do it; for a whole year I suffered, until I was finally driven to it, and I began to think that possibly I might be mistaken. Now, since it is certain that stimulants must be had, it would seem to be wise to supplant those which we have which lead to intoxication, and have a wholly different effect upon the system from pure domestic wines, by wines made in our own land. They will be light. Wine cannot be transported unless it is strong, and therefore the foreign wines are strong."

Mr. Haldane read the following on

WINE-MAKING.

"It would give me pleasure, were I competent to interest you on so important and interesting a subject as wine-making. For a business, it is assuming large proportions in our own country, and as it is properly an appendage to this society, we may well investigate the methods of success in that as well as success in fruit culture; for it requires, in my opinion, all the qualifications to succeed in making the better quality of wine, that it does to produce superior fruit, namely: the highest cultivation of the intellect as well as of the soil, and even more, the highest state of cultivation as well. The inquiry is often made, why France and Germany, with the disadvantage of soil and climate, produce the best wine in the world, as compared with Spain, Portugal, and the islands of higher latitudes? The answer to me is plain: No semi-cultivation ever produced superior qualities of wine. Wine is like fruit: any slovenly farmer can raise fruit of some kind. And so

with wine: anybody can make wine; anything will make wine, that is sweet or sour; but the quality is what you are after, and for the best wine it requires the best grapes, fully ripe. The longer they remain on the vines, without freezing, the better. They should be gathered in pleasant weather.

The general principles of wine-making and cider-making, as I understand them, are the same; and as all are more or less familiar with the process, let me call your attention to some of the peculiarities in the process of making a better quality of wine.

First of all, cleanliness,—neatness in everything. There is that delicacy in the flavor of good wine that cannot be tampered with.

In making cider, perhaps the grinding up of worms and spiders, rotten apples, and the like, will not injure the cider, but it will certainly not improve wine.

We are not to expect that wine-making on a small scale, as we begin in a country like this, where we take it into our houses to make, can be as perfect as where, on a large scale, all the conveniences are complete. But in the house let woman's right prevail. The good housewife will look after the little matters of neatness that men think unnecessary and frivolous. Were I to mention the extreme neatness in particulars and detail, you would think them foolish; but they are essential, nevertheless. Care is necessary in gathering the grapes not to break or mash the berries; carry into a cool and airy room; spread paper on the floor and empty baskets of about a bushel, in piles, over the floor. Then assort or pick them over, taking care to pick out all unripe and imperfect berries. They should be left on the stems as much as may be, and when the weather is sufficiently cool the thermometer should range as low as 50° or lower. If the grapes are well taken care of, let them remain till cool weather, but do not allow them to freeze. The next thing is the grinding or mashing the grapes. That should be done as rapidly as pos-

sible after beginning, until put in an open cask or tub to ferment. The cask to be used should be particularly attended to. A new cask is not fit for that use; the best thing is one newly emptied of alcohol or of any pure liquor. But do not take a gin cask, as so slight a thing as the taste or smell of the juniper, in a cask that has had gin in, although emptied and dry, will spoil a cask of wine.

If necessary to use casks the second time, they should be scalded, or a brimstone match burned in them; and always iron-bound as the most durable, for it takes time for wine to make or mature, and a cask of wine, in the process of maturing, should never be handled for the setting of hoops or the like.

The ground or mashed grapes take the name of must in the place of pumice in cider-making. Four days is the usual time to ferment before pressing them. Add from one and a half to three pounds best white sugar to the gallon; have the casks all ready, with the faucet set in, in position in the cellar, not to be moved until the wine is drawn. The cask should remain with a syphon in the bung, and always full; the syphon should remain in the following winter. Then after two, three or five years, draw off and bottle. Then bury with sand in the cellar till wanted for use. The cellar should be of good quality, equal or even temperature. It should be retired from the street, so as not to be subjected to jars; if near the pavement, where loaded teams are passing, it will keep agitated so as not to settle good.

The President—Can you give us an idea of the profits of wine-making?

Mr. Haldane—I have made forty gallons a year. If I sold any I sold it for \$4 a gallon, at four to six years of age. Wine will increase ten per cent a year.

Mr. Suttle—What grapes do you use?

Mr. Haldane—I use the Isabella. I should not like to treat my temperance friends to wine made without sugar. When

people are used to wine it is preferred without the sugar. Wine, to keep well, must have spirit, and wine of a good quality must be a stimulant, and sugar produces it. Here, grapes are more sour, and require more sugar than those from hotter climates.

Mr. Bradfield—Is not the wine made without sugar of the most temperate character ?

Mr. Haldane—I claim to be a temperance man, and if I thought wine would injure the temperance cause I would plug up my wine.

The President—Would it not be safer to pull the plugs out ? (Laughter).

After recess, in which the wines of Mr. Haldane were debated in comparison with Rhine wine, and the apples on exhibition were examined by the committee, the following paper was read by Mr. Husted :

THE INFLUENCE OF THE STOCK ON THE GRAFT.

In considering the influence of the stock upon the graft growing thereon, or *vice versa*, we must not lose sight of the fact that either vegetables or fruits grow on soils adapted to their wants, and being fully supplied with the elements of fertility, will yield vastly more in quantity, and of superior quality, than when grown on unfavorable soils, and unskillful or deficient cultivation.

Fruit grown on good soil, where every attending circumstance is favorable to its fullest development, and aided with good cultivation, is so greatly superior in flavor, texture, size, coloring, and productiveness, as to be often regarded as a new variety, and a great acquisition to our list of fruits; while another tree of the same variety, and growing perhaps in the same orchard, but on a poor or unfavorable location, with poor cultivation, will produce fruit so much below the average standard of excellence for that variety as to be recognized with difficulty.

This variation in the growth of the tree, in its productive-

ness, and in the appearance and quality of its fruit, often presents the idea that in consequence of some particular method of propagation its character has been changed, and that this changed condition is permanently becoming an inferior variety of the original sort, or an improvement thereon, while the real cause of this variation should be attributed to intelligent cultivation on the one hand, or neglected culture on the other. The permanency of its improved condition is entirely dependent upon the circumstances of its growth and the manner of the cultivation it will hereafter receive.

It is thought by many that the different varieties of fruit trees may be caused to become more hardy from being worked on particular stocks, or that a permanent improvement may be effected by careful cultivation of scions from the trees that produce the finest fruit in the greatest abundance, and that by a faithful observance of these particulars, great and permanent changes may be effected, producing distinct sub-varieties of the original fruits.

A careful, candid reference to the mode of multiplying improved varieties, and to the laws that govern vegetable growth, will, I think, defeat this view of the case. A bud or graft inserted on a growing stock bears the same relation to the stock it is growing upon, as a hill of corn bears to the soil in which it grows. The corn strikes its root in the ground on which it stands and draws from it the plant food it needs for its growth.

The graft or bud attaches itself to the stock on which it is inserted, and receives through it (the stock) from the soil the rude plant food it needs for its growth also.

The elements of fertility drawn from the soil in either case is in a crude, bulky condition, wholly unfit to form vegetable growth until received by the leaves and by them prepared for use.

But the corn in the ground and the graft on the stock commence their growth under entirely different circumstances.

The grain of corn is a seed containing the germ of a distinct plant, and so long as this corn plant grows, or is propagated by cuttings or offshoots, just so long it will maintain its identity. But its seed may be fertilized from another plant, and its character become very much changed in the succeeding crop. But the graft or bud is simply a detached or divided part of a tree; the seed from which it grew having been fertilized perhaps hundreds of years ago, its individuality then stamped upon it, and it has grown ever since without losing one distinctive feature.

Every seed may contain the germ of a distinct variety of the same species, because it may have been fertilized by pollen from a different individual. But in multiplying plants or trees by a division of their parts (as in grafting, budding, cuttings, or by a division of tubers,) we are merely increasing the parts of a tree whose embryo was fertilized in the seed that produced it; its distinctive character was then impressed upon it, and all the arts or appliances of man cannot change it. Besides, it is an admitted principle in vegetable growth, that trees or plants, propagated by a division of their parts, will remain the same identical varieties, and retain all the qualities and habits of the tree or plant from which they were taken. They are in fact parts of the same plant or tree.

The stock, base or trunk of a growing tree is only a medium through which it receives crude sap for its growth from the soil. The ascending sap of the different varieties of any species of plants is nearly if not identically alike. This sap food is carried to the leaves, where its excess of water and oxygen are thrown off by evaporation; carbon is absorbed from the air, and the proper food for the growth of the particular variety of wood and fruit is elaborated and supplied to the tree for its growth in the form of a thin layer between the inner bark and the sap wood. The upward flow of sap from the roots through the sap wood to the leaves, being of one general character, it follows that a dozen or even more

varieties of fruit may be grafted on a single tree. Each variety receives its crude sap from the same source, and all through the same trunk or stock, and then each variety, through the office of its leaves, buds and bark, manufactures proper food for the growth and perfection of its own particular fruit and wood, and also buds for the continuance of these identical varieties.

Thus we may grow summer and winter fruits, sweet and sour, all sorts of colors, etc., quinces, pears, and apples, or peaches, plums, and apricots upon the same tree.

The entire lateral growth of a tree is from its leaves or top downwards, and not upwards; even the smallest rooted receives its food from the leaves.

Every tree and shrub is the protector and propagator of its own self, as it were, forming each and every bud for its future growth, after the identical type the Almighty first imposed upon it.

It might be inferred from the peculiar manner of the growth of a tree, that the stock might in some way become changed in character to correspond with the growing top, but the only effect produced is to control its vigor and the size of its growth. This is easily explained, from the fact that the trunk and roots of the stock received all their food for growth from the growing top, and if the supply of food be deficient, the growth of the roots and stock will be correspondingly diminished. We are in possession of ample proof that the stock, under all circumstances, maintains its exact identity.

Although the pabulum for the growth of the entire tree, root, trunk, and top, is prepared by the leaves, and is distributed from the top downwards; yet the moment this wood-forming substance reaches the point of union between the stock and graft in its progress to the stock and roots, its descent is there impeded or checked to a greater or less extent, depending upon the similarity or affinity of the stock and graft. This prepared plant food is now about to enter a new domin-

ion, and its individuality must be entirely changed before it can proceed farther or add to the growth of the stock and roots. Two branches on opposite sides of the point of union between the stock and graft, and so near together as to crowd upon each other, will maintain their individual characters. One branch may produce a sour apple, while the other will produce sweet fruit; one may produce early and the other winter fruit; one branch may grow a quince, and the other a pear, or the stock may produce a peach, while the graft may bear a cherry. In no case is there any mixing of blood nor any mingling of parts, and trees multiplied from the buds of either will produce after their original type, without any apparent variation.

There is, however, one very marked effect produced by the graft upon the stock which should not pass unnoticed, and that is the ability of the graft or bud to cause the roots of the stock upon which it is growing to conform to its own peculiar habits of growth. We find in digging up nursery trees, where all the different varieties have been worked on the same stock and have been cultivated alike, that each variety of trees have caused the stocks to assume many of its own peculiar habits of growth. Examples: The Greening and Talman's Sweeting are found to grow upon a few very strong and straggling roots; the Spy and Bellflower will be provided with an abundance of roots, penetrating deep in the soil, similar to a standard Pear. The Swaar will have feeble roots, mostly growing on one side, corresponding to the growth of the tree itself, while the Crab apple will be found to grow upon very strong roots reaching out in all directions from the trunks. As a rule the growth of the roots is found to correspond with the growth of the top. In grafting a grown-up tree with another variety of fruit, the roots of the stock in this case have become established according to its particular habits of growth, and they cannot be changed so far as they have already grown, but when the new top commences to grow the roots will assume much

of the habits of the growing top. In the case of grafting slow growing varieties upon a very strong growing stock, or upon a full grown tree, the large supply of sap food will stimulate the grafts to put on a much more vigorous growth than when under ordinary circumstances, but in such cases the top will in a few years return to its natural habit of slow growth; slender or crooked branches, as the original habits of the varieties may have been.

The greater the dissimilarity between the stock and graft, the more difficult and slow will be the passage of the prepared material for the formation of new wood, from the graft to the stock, and as a consequence an excess of this wood-forming substance is retained in the graft, and is there formed into woody growth and fruit buds, while the stock itself receives only a limited supply of material for new growth.

This principle is employed in the production of Dwarfs. The excess of nourishment partly retained above the stock, expends its forces in forming fruit buds and in bearing fruit, when, had there been no disagreement between the stock and graft this prepared plant food would have passed into the stock and its roots, thereby enlarging and invigorating them, and they, in turn, would have been able to furnish the top with a full supply of crude material to be prepared for the formation of new wood.

These facts are known and made use of in the production of dwarf trees.

Grafting and budding on dissimilar stocks causes an obstruction in the flow of matured sap from the graft to the stock. This excess of nourishment expends its forces in developing the young trees, in forming fruit buds, and in the early bearing of fruit; but the stock, not receiving an adequate supply of food for the full formation and extension of its roots, is checked in its own growth, and, as a consequence, can furnish only a moderate supply of crude sap for the leaves to digest, which is again largely devoted to the production of fruit

instead of wood, until finally both stock and graft become dwarfed in growth, and expend their energies in the production of fruit instead of wood.

Mr. Houghtaling read the following

ESSAY ON GRAFTING.

I regard it as a subject of vast and untold importance, in which all lovers of good fruit have an interest; but especially so to the orchardist and fruit-grower, because he is thereby enabled to propagate such varieties as he may choose, and multiply them at will, and if he is not satisfied with his first choice, it is very easy to replace new tops on old bearing trees of any kind that may be found desirable.

I think it is something that every farmer and fruit-grower should know how to do for themselves, as it is very easily learned. Any one of ordinary genius can do it after once seeing it done.

There are a good many modes by which this work can be performed successfully, but only some three or four in common use.

WHIP OR SPLICE GRAFTING.

This mode is used principally by nurserymen on small stocks and root grafts in propagating young trees. This is done by cutting both the scion and stock with a slope of an inch or more, then make a slit in the middle of each, forming a tongue; then insert the tongue of one into the slit of the other, taking care to have the inner bark as close in contact as may be, then tying fast with a woollen string or basswood bark, and cover with wax, or what is still better, a strip of cloth covered with composition or grafting wax.

CLEFT GRAFTING.

This is the usual mode among orchardists, and is thought to be the best on stocks of from one to two inches in diameter. It is thus performed: The head of the stock is carefully sawed off in a smooth place and the top pared smooth, and then split

down two or three inches, inserting a wedge of hard wood to keep it open. The scion is cut in the form of a wedge, about one inch or more, with one side a little the thickest, and with a bud if possible on that side, as this bud will often grow when others will not, though we always cut the scion with from three to four buds. The scion is now carefully inserted so as to have the inner bark of both scion and stock come in contact. We commonly insert two scions, sometimes in a very large stock we split crosswise and set in four, but if they all grow they are likely to be too close together, and a part of them should be cut out soon after they get a fair start. The whole of the wounded parts are now to be carefully covered with wax to keep out both air and water. Put it on so thick that it will not grow off until the wound is healed over.

Right here I beg leave to call in question the directions given by all the authers that I have read on this point of inserting scions to have them grow. Barry's Fruit Garden, page 81, says: "place in perfect contact the inner barks of scion and stock and the whole cut surface." The American Orchardist says, "the inner bark of the scion and stock must both exactly meet." Other writers both in books and papers have expressed the same idea, and this seems to be the prevailing opinion everywhere. Now I take issue with all these writers, simply because the directions cannot be followed with sufficient ease to be practical, and this is the reason no doubt that so many fail to make their scions grow. It requires too nice an adjustment to make sure of getting "the rim of the wood of both scion and stock exactly together" every time, and besides this nice adjustment is not necessary as is shown by those who make grafting a business, and whose income depends upon the speed they can insert them, and who will set from 200 to 500 in a day and warrant them to grow. They scarcely look at the "rim of the wood," or "the inner bark" but always set them with a little slant outward to make sure that the sap lines cross each other somewhere and that is suf-

ficient. Nature, in her healing progress, will very soon enlarge the junction. In this way we find that a crooked scion is better than a straight one, as with them we can make the sap lines cross twice, but with a straight one only once.

SIDE OR BARK GRAFTING.

This mode has been very successful. It is done in two or three ways, sometimes cutting off the stock and sometimes without. By this method a new limb can be started on the side of a tree where it seems desirable to bring the top in good shape. Make a cross cut in the side of the tree, then slit down an inch or so; pare the bark above the cross down slanting to the wood; have the scion cut sloping as in whip grafting; now raise the bark carefully each side of the slit, insert the scion, bind it fast and cover with wax. But the stock may be cut off, as in cleft grafting, and the scion inserted under the bark in the same manner as above. Some experienced grafters think they have the best success by this method. The greatest objection to it is, if the grafts grow thrifty they are more likely to be blown out with the wind before they get a strong hold of the stock.

TIME OF GRAFTING.

The month of April I think the best time for grafting on large trees by other modes, but with the last mentioned method we are obliged to wait until the bark will peel on the stock. I find by experience that it is best to cut every limb that needs to be grafted on large trees all at one time, so as to keep the top even and well balanced, leaving a few brush to hold the life of the tree until the grafts are well started. But these should all be cut away as soon as the second year.

Cut the limbs with as long arms as possible, so as to bring the grafts wide apart and the top well spread, as like all young sprouts they always shoot straight upward from their starting point. Scions may be cut any time between the first of November and the swelling of buds in spring, though it is

always best to cut them in mild weather. Bury them either in sawdust or sand, away from frost, but in a cool place, neither too wet nor too dry; but where they will keep fresh as in their natural state. But I prefer, when I can do so, to graft early in spring, before the buds swell, and take the scions fresh from the tree, as I think they are more sure to get an early start.

GRAFTING-WAX.

Permit me now to give you one or two choice receipts for a composition for grafting-wax: Take 2 pounds of rosin, 1½ pounds of beeswax, and three-quarters of a pound of tallow. Melt the wax and tallow together, then slowly add the rosin, pulverised. When thoroughly melted and mixed, pour the whole into a pail of cold water. Then work it well with the hands, using a little soft grease to prevent sticking. This I have used and know to be good, though some prefer to add a small quantity of linseed oil with less tallow—think it holds its place better and not so liable to crack off.

A late writer in the *Western Rural* gives this for a composition: 6 pounds rosin, 1 pound beeswax and one pint linseed oil; apply hot with a brush, one-eighth of an inch thick over all the joints, and he says it never fails.

TRIMMING OFF SPROUTS.

One idea farther, I should have mentioned before, which is very important, and that is to keep the sprouts well pruned away from around the grafts. This is very essential to success, as on a healthy stock the sprouts are sure to make a vigorous start, and having all the advantage in strength, they draw the sap, rob the grafts of their sustenance, and often cause them to wither and die after they have leaved out.

Thus we find by actual experience that with healthy stocks, fresh scions, and good care in performing our work, we may change the variety of our fruit at will; multiply them as we may desire, and supply ourselves, our friends, and the market

with the best and choicest fruits that seem to luxuriate so bountifully throughout our beautiful Peninsular State.

REPORT ON APPLES.

Mr. Blakely reported, from committee, inability to find a name for a variety of apple introduced by Mr. Dickinson. He thought it might be the Bacon apple, introduced by Mr. Bacon of this State, a very fine apple and good keeper.

Mr. Dickinson said the apple was very hardy and green when gathered in the fall.

MR. HALDANE'S ISABELLA.

Mr. Haldane explained the qualities of his wine: one was without sugar and a pale wine, the other a red wine, made from the same grape—the Isabella—but pressed more, so as to get the coloring matter from the skin of the grape. The best wine is that which comes first from the grape, without much pressure, and nearly colorless. I would rather have our own wine than the Rhine wine. I believe our grapes will make a better wine than the California grapes will. The sugar does not affect the color. The best wine requires the best grapes and the best sugar. Everything must be good that is used for it. I have designed to prove how good a wine could be made, and I think I have succeeded pretty well. The Delaware is a good grape for wine. The Isabella is not a wine grape. The Clinton would make a good wine, but it is subject to mildew in this climate. I should not want to make wine with brown sugar.

Mr. Knapp—I have made wine with both white and brown sugar and I prefer the brown sugar.

VARIETIES OF GRAPES.

The President—The question is the varieties of grapes we can recommend.

Mr. Bradfield—I think it is premature to recommend the varieties. I do not think we are sufficiently experienced to do this. If we raise hundreds of acres of the Concord, the time will come when it will be a drug in the market. The question

is, when we get more than a supply of table grapes what shall we do with the surplus? Is the Concord a proper wine grape? The Clinton is a better wine grape. The Ives Seedling is a good wine grape. Wine should be made without sugar. There are some varieties of grapes that will make good wine without sugar. It is a fact that the grape sugar does not produce as intoxicating effect as common sugar. I should not hesitate to recommend the Concord as the best grape for the million to-day, but when that is produced by the million pounds, what are we going to do then? The Delaware I should not hesitate to recommend. The Iona is a favorite grape with me, but I could not recommend it to plant in large quantities. I would not recommend the Isabella. Mr. Haldane has succeeded with it, there's no doubt. The Martha is a fancy grape. The difficulty with the Clinton is, the berry does not set well, and the bunches do not ripen regularly, and they are liable to rot.

A. T. Linderman introduced a preamble and resolution recommending the Delaware, which was discussed at length.

Mr. Blakely—I have succeeded with the Catawba on the south side of the house, but where it gets away from the wall it is 10 or 12 days later in ripening.

Mr. Bradfield—The Catawba has succeeded twice with me in six years. I would not have a thousand Catawbas if a person would give them to me and plant them.

Mr. Carrier offered as a substitute to the resolutions of Mr. Linderman:

Resolved, That the Delaware and Concord are the two best varieties of grapes for general culture, but we do not recommend the Concord for wine.

Mr. Carrier—I have never raised but two bunches of the Concord, but it is the general report that it is the most hardy and the best for table use.

Mr. A. T. Linderman—I think the Concord is a hardy, prolific, and healthy grape. I think this, however, that with the amount of grapes that are to be planted, and for the people

who look to us for a decision, although at the present time, the Concord brings as much as the Delaware, we should in view of the future recommend a grape that will make wine. I differ with gentlemen as to the ease with which we can make a change of varieties by grafting. The Concord is a grape for the million, and if the 20,000 that are to be planted this year are to be Concords, and it produces a quantity that cannot be marketed profitably, it is important that we should look ahead. You give people a Concord grape alone, and it is all right; but place beside them the Iona or Delaware, and people will prefer them to the Concord and the Concord will then be a drug in the market. This year Catawbas sold at a good price. I saw crates of Concords thrown into the river, having rotted for want of a demand for them.

Mr. Suttle—I was offered 25 cents for my Concords last year. The Delaware is the best native grape we have, and it can be grown as many tons to the acre as the Concord, but it will be years before it will be as good as the Concord in our markets.

Mr. Husted—The million need grapes, and the Concord is the only one we are certain of. I have found even ladies that prefer the Concord to the Delaware as a table grape. The Concord is good for canning, and also for jelly. We can use up thousands and millions of bushels. The Concord makes a fair wine. We can raise 4 pounds of Concords to one of Delaware.

Mr. A. T. Lindermann—The price that the Concord brings is on account of its fair exterior, and because people are not well posted upon the interior of the two grapes. The best quality will win in the end in the market of the future.

Mr. Husted—We should make grapes abundant for the million before we fix on fancy kinds.

Mr. Linderman—I have lived where they raise grapes by the ton. The Clinton, and Concord, and Isabella were not new grapes, and they went begging for a market, while those who had quantities of Delawares sold none for less than 15 cents, while the others were down to four and six cents a

pound. This was in northeast Ohio. The Delaware is a hardy vine, and easily grown.

H. S. Clubb—The fear of overstocking the market arises from the fact that grapes are not yet produced with sufficient abundance to have arrangements by forwarding agents and others, for shipping to points where required. When the crop becomes large, new markets will be opened and grapes will be more extensively used. Besides, there will be facilities for canning, making jellies, syrups and wine, which will vastly increase the demand.

Mr. G. S. Linderman—I agree as to there being no danger of glutting the market when the proper facilities are acquired for shipping, canning, etc.

Mr. Bradfield—People will prefer the Concord because of its being larger. But it is perfectly easy to graft any new variety on to the old stock, if found desirable.

Substitute adopted—ayes 16, nays 3.

On motion of Henry S. Clubb, the vote was reconsidered, and the following resolution was adopted in lieu thereof:

Resolved, That this Society regard the Delaware and the Concord as the two best grapes for general cultivation: the former being adapted for both the table and for wine, and the latter for common use.

Adopted—yeas 16, nays 1.

SUBJECTS FOR NEXT MEETING.

On motion of Mr. Husted,

Resolved, That the subjects to be discussed at the next meeting be: "The transplanting of fruit trees and care of them during the next year."

Mr. Bradfield was also requested, and promised to prepare a report as to the best varieties of grapes for amateur cultivation, for next meeting.

On motion of Mr. Bradfield, each member pledged himself to introduce a new member at the next meeting, or pay the \$1 fee to the Society.

APRIL MEETING.

The April meeting was held at the Societys' rooms, Fuller's Bank, Tuesday, April 4, 1871.

Vice President Holt in the chair.

Minutes of last meeting read by the Secretary, and approved.

APPLES.

There was, for this season of the year, a good display of apples on the tables, presented by Mr. Holt of Cascade; Mr. Jacob Armdt of Walker; Messrs. Clements, Dickinson, and Carrier.

CATAWBA GRAPES.

Henry S. Clubb exhibited two bunches of Catawba grapes, raised, and kept in cork sawdust, by Mr. Stokes, gardener to Hon. T. W. Ferry.

The President, Mr. Holt, asked if there was any advantage in cork over common sawdust.

Mr. Clubb—I should think there is, owing to the fact that cork is perfectly dry, and is much lighter than ordinary wood sawdust.

Mr. Bradford—Another advantage is that the moisture from any of the grapes that may decay will be more readily absorbed. Pine sawdust is apt to flavor the grape unpleasantly, while cork will not.

Mr. Clubb—Mr. Stokes considered that temperature, being kept in a cool, dry cellar, was the main cause of the grapes keeping so well.

Mr. Bradfield—They certainly have kept splendidly.

The Secretary read the following essay by Hon. J. G. Ramsdell, of Grand Traverse, on the

CULTIVATION OF THE GRAPE.

In 1862 I sent to a Michigan nursery for six vines, leaving the selection to the nurseryman, and received two Dianas, two Delawares, and two Isabellas. These I set in the spring of 1863. I succeeded in killing one of each kind; the others lived. It is unnecessary to state how I set them or tended them,—any one can do as well, and few can do worse. The Diana made a good growth, and bore a few clusters the second year. The third year the Diana gave a good crop, and the Isabella bore a few clusters, but did not ripen them well. The fourth year the Delaware, which was a very feeble vine, bore a few compact clusters, and the others bore full, and all ripened well. The fifth year, 1869, the Delaware came forward rapidly, and gave about ten pounds of very superior fruit, and ripened it fully. The Diana and Isabella were both heavily loaded with fruit, but not a grape ripened upon either. That winter the Diana was injured so that it bore no fruit in 1870. The Isabella was moved in the spring and died. The Delaware bore a heavy crop. These vines were tied to trellises, but were pruned but little, and never manured.

In 1866 I read some articles in the *New York Tribune* on the culture of the grape, written by Dr. Grant, of Iona Island, and became satisfied from those articles, and the success of my Diana vine, that with proper culture, we could raise our own grapes, notwithstanding we were marked on the map as being in latitude 44.

That fall I sent to River Bank nursery, Adrain, for six Delawares, two Dianas, two Isabellas, two Israellas, two Ionas, two Concords and two Hartford Prolifics; and to Dr. Grant for his *Manual of the Vine*. In the spring of 1867 I prepared a border or bed, eleven feet broad, running east and west, on a gentle slope facing the east. This bed was trenched eighteen inches deep and manured heavily with stable manure. I then set the

vines as directed by Dr. Grant in his Manual of the Vine. That is, I dug a trench one foot deep and three feet wide, on the north side of the border, and once in six feet drove a stake, then raised a mound about four inches high in the bottom of the trench opposite each stake, and placing the vine upon that close to the stake, spread the roots out evenly and carefully in every direction toward the border, and then filled the trench about half full of the soil thrown out. I let but one cane grow to the vine, and kept them well tied, and at each hoeing filled the trench a little, and in the fall filled it up even with the surface.

They all *lived*, but after all my care and minute following of directions, this border is not a success. Whether the fault was in the vines, which were not No. 1, or in the manner of planting, or in mixing the subsoil, which is dark ferruginous sand, or from pure cussedness, I am unable to say. Not one of them has ever blossomed, and until last season not one ever ripened any wood. At that time, however, I was so ignorant of what a vine ought to do the first year, that I regarded the three to four feet of growth to the vine that year a pretty good success, and determined to set a small vineyard that fall. So I wrote for catalogues to all the nurserymen whose business I saw advertised in the papers, and from them selected F. L. Perry, of Canandaigua, N. Y., as the proper man to deal with, and from him ordered 100 Delawares, 100 Concords, 100 Ionas, and 50 Isabellas, "all to be No. 1, one year old, grown from single eyes under or by his patent process." These I received in excellent condition and set them at once that fall (1867) in the following manner: holes were dug one foot deep and three feet in diameter, in each of these a mound was raised to within three inches of the surface, composed of one-half surface soil, one-fourth swamp muck, and one-fourth well rotted stable manure, all well mixed together. Upon this was sifted a thin coat of surface soil, just enough to prevent the roots, placed upon them, from coming in contact with any fermenting sub-

stance during their dormant state through the winter. Upon these mounds the roots were placed and spread out evenly in every direction, first having been cut back to 18 inches; then soil was sifted on to cover the roots; this done, the hole was filled up even with the surface with the same mixture of soil, muck and manure. When this was done the crown of the vine was three inches from the surface, and the ends of the roots one foot.

The 350 vines were set in three different plats. One plat of 125 vines are on the same slope and adjoining the border already mentioned. This slope is on the east side, and at the base of a hill that rises to an elevation of 254 feet above it. The soil is sand, lime, gravel, and vegetable mould, dry and porous. In this plat are 67 Delawares, 40 Ionas, and 18 Israellas. Above this plat on the side of the main hill, a spur juts out which is composed of clay, sand, limestone, clay-slate, and lime-gravel, all thoroughly mixed together. This is terraced up in six foot terraces running north and south, sloping south on the east end of the spur, except one broad terrace running on the south side of the spur near its upper end. This terrace raises about one foot in ten, running west. Upon these terraces are 104 vines: 60 Ionas on the lower ones, 11 Israellas on the upper one, running north and south, and 33 Delawares on the upper broad terrace running east and west. South of this terrace plat, on the main side-hill, and facing directly east, is the third plat, containing 100 Concords and 21 Israellas. The soil on this plat is the same as plat No. 1, but the hill is quite steep, raising about one foot in six, and is not terraced. The vines set on the terraces had no manure except swamp muck, mixed with the soil. I have been thus explicit in describing the soil, surface, and elevation, because of the peculiar results which followed.

All the vines started nicely in the spring, and some on the lower plat had grown two feet by the 6th of June. Then came a frost which cut back every vine on this plat, but did

not reach as high as either of the other plats, so they escaped untouched. A severe drouth of eight weeks following immediately, the vines on the lower plat made no ripe wood that year, and a few died. Just before the rain came, and in my absence, the two upper plats were hoed. Upon the terraces the soil was so arranged around the vines as to form shallow basins to catch the water, while the other plat was left even and smooth. When the rain came it all ran off from the unterraced side-hill like water from a duck. This fault in hoeing was corrected, but it was some time before another rain. Some of the vines died, and all were so stunted that they did not do well that year. The next spring these and the lower plat all started from the root. Of the 33 Delawares, 12 were so injured by cut-worms that they formed no ripe wood that year, and started from the roots next spring. At the close of that season I had 60 Ionas, 21 Delawares, and 11 Israellas uninjured from any cause, with canes from 7 to 14 feet long, of well-ripened wood. The next spring, 1869, all kinds started vigorously, as did 650 more, obtained of Mr. Perry, and set that spring, composed of Delawares, Ionas, Hartfords, Adirondacks, Rogers' Hybrids Nos. 4, 15, and 19, with some others sent to me for trial.

The Ionas, Israellas and Delawares on the terraces bore some fruit that year. The Delawares and Israellas ripened fully, and Iona nearly so. About the 20th of October winter came upon us without previous notice. The leaves upon the Ionas were as green as in midsummer, and they were all so injured that they were late in starting in the spring of 1870, and consequently bore but little fruit.

The lower plat gave about the same amount of fruit in '70 that the terraces did in '69. The Concords did better than the lower plat in fruit, but not in growth. The 11 Israellas on the terrace gave 25 pounds, and *the 21 Delawares gave 102 pounds.*

The 650 vines set in the spring of 1869 were set in the same

manner as the 350 before mentioned, except that the holes were made but ten inches deep and the crown placed within two inches of the surface. 649 lived, and nearly all made ripe wood that season, so that all the Rogers (35 of each kind), and nearly all the Delawares (250), bore and ripened fruit in '70—from one to six clusters to the vine, and some of them, especially the No. 15, were very fine clusters. My vines, except on the terraces and Dr. Grant's border, are eight feet apart each way.

In the spring of '70 I changed stakes for trellis. The trellis is made by driving posts $2\frac{1}{2}$ feet into the ground, half way between the vines north and south, and a little above them east and west. Upon these are nailed bars 16 feet long, $1 \times 1\frac{1}{2}$ size, and 4 feet apart, and laths upon these, 20 to the vine. I found it more convenient and expeditious to nail the lath on to the bars first and then put them up. The sudden snow of 1869 having prevented my pruning that fall, I waited until the leaves were well started in June, then pruned them as they were tied upon the trellis. In training I aim to adopt the arm system; but while growing and training the arms, I allow from one to three other canes to grow, and spread them upon the trellis in the shape of a fan, intending to cut them entirely away as soon as the arms are strong enough to cover the trellis.

All of my vines made a vigorous growth last season and ripened their wood fully. All those that bore little or no fruit have apparently caught up with the others, and bid fair to equal them in this season's crop. The 649 set in the spring of 1869 have met with no accident, and are much larger than the others even at their age. Of this lot the Delawares were from layers, the others from single buds, and all one year old. The Rogers' Hybrids have made the strongest growth, and the Adirondacks the weakest. I leave my vines tied to the stakes and trellis all winter.

From my experience, so far, I am of the opinion:

1st. That strong, healthy one-year-old vines are the best to plant.

2d. That here, where the ground does not freeze in winter, it is better to set the crown of the roots near the surface.

3d. That when the vine is young one or more is often lost by very slight mistakes.

4th. That where the vines are what they should be when received from the grower, and are carefully and properly attended, an abundance of fruit may be had the third year after planting.

5th. That when trellis is used, varieties should be planted not less than 12 feet apart in the row.

As to the kinds, it would be unjust, from the experience here given, to condemn any of the four varieties planted in the fall of 1866.

The 21 Delawares and the 11 Israellas were all that came through to three years old without any accident, and they have made a good record, while the Delawares on the lower plat, that were cut by frost the first spring, have done no better than the Concords that were injured by the drouth, or the Ionas that were overtaken and injured by the sudden winter of 1869; and the Israellas, in the Concord plat, have not done as well as the Concords.

Had I set the lower plat entirely to Ionas, the Concord plat entirely to Concords and Israellas, and the terraces entirely to Delawares, I should, undoubtedly, have condemned all but the Delawares, and would have been as enthusiastic in praise of the Iona or Concord; and I fear it is some such unfavorable comparisons that makes such a wide difference in individual opinions.

One person, perhaps, commences his first investigation of the subject by reading Dr. Grant's Manual of the Vine, and closes the volume with the impression that the Iona, Delaware, and Diana are about the only grapes fit to cultivate. He next gets a copy of Peter B. Meall's partisan work on the vines, and by the time he gets through with that, he is thoroughly convinced that the Iona and Delaware are the grapes, and that

the Concord is unfit for man or beast. He then sends to Iona Island for six "A" No. 1 Delawares, and six "A" No. 1 Ionas, then trenches a border, paves the bottom with bones, and fills up with rich soil and manure, and then sets his vines. At the same time, in order to *test* the matter, he procures a few Concord *cuttings* and sticks them into the ground; but is very careful not to stick them where they will interfere with his favorites. At the end of the second year he has a good show of Delawares and a fair one of Ionas, but no Concords. The third year his Delawares and Ionas cover the trellis with fruit, while his Concords have a few imperfect bunches. He is now able to compare the *quality* of the grapes. Thus he has demonstrated that the Iona and Delaware are all that grapes can be, and that the Concord is worthless. Another person, who reads the agricultural papers, procures some Concord and Delaware cuttings, and takes great pains in setting them. Three-quarters of his Concords grow and do well; three-quarters of his Delawares die, and the others for the first four years maintain a sickly existence, and by that time his Concords are loaded with fruit. He has *demonstrated* that the Concord is *the* grape for the million, and in this opinion he is sustained by every nurseryman who grows his stock from cuttings in the open ground.

How much of this wordy war about the hardiness, thriftiness, and bearing qualities of the different varieties results from such experiments and early prejudice, it is difficult to say. I find much less difference in this respect than my previous reading had led me to believe.

In the matter of quality, nine-tenths of all who visited my vineyard last fall preferred the Delaware. A few, myself among them, preferred the Iona; and one, a lady who appeared to be perfectly sane upon every other subject, preferred the Concord.

You ask if we can raise grapes certainly and profitably at Grand Traverse.

We can raise them *certainly*, but whether we can raise them *profitably* or not is yet to be determined. No disease or insect has yet troubled my vines.

On motion, the meeting adjourned.

MAY MEETING.

Held at Fuller's Bank, May 2d, 1871. President in the chair.

Minutes of last meeting read by Secretary, and approved.

C. L. Whitney, from committee on procuring the passage of the act of incorporation, reported that the bill had passed with an amendment, consisting of the placing under one head of the agricultural, horticultural, and mechanical associations.

On motion of O. H. Simonds, the matter of incorporation be referred back to same committee, the same to report at next meeting.

On motion of C. L. Whitney,

Resolved, That the Michigan State Pomological Society hold its second annual fair on the — days of September, 1871.

On motion of O. H. Simonds,

Resolved, That the time when and place where the second annual fair of this society shall be held be referred to the Executive Committee, with instructions and full authority to fix the same, and the said committee are also instructed to prepare and publish the premium list for said fair, arrange programme, appoint superintendent and viewing committees, and take all steps, and do all acts, necessary and proper to be done in and about the holding of said fair.

On motion of C. L. Whitney,

Resolved, That when we adjourn it be to the 16th of May.

Messrs. Bradfield, Husted, and Whitney spoke upon the subject of transplanting, and care of trees the first year. A letter was read from S. B. Peck, stating that all kinds of fruit trees are filled with sound blossoms.

Mr. Husted—About pruning apples, cut in late winter or early spring for growth; for fruit buds, cut in August.

President favored pruning, as a rule, in March.

Mr. Dickinson—I believe pruning during blossoming time is preferable, as the wound heals better. About the codling moth I have a word to say. I know a person who kept vessels filled with sweetened water, and caught four bushels of the codling moth in one season. That year's crop of apples in his neighbor's orchard was very wormy; his apples were free from worms.

On motion of C. L. Whitney, meeting adjourned.

Special meeting held pursuant to adjournment, May 16, 1871.
Vice President Clubb in the chair.

Minutes read and approved.

The chairman stated the object of the meeting was to consider the report of the committee of incorporation, and to organize under the act.

C. L. Whitney, from committee on incorporation, reported the act as passed the Legislature, but that by its conditions three weeks time was necessary to complete the preliminaries previous to organization.

On motion a committee, consisting of C. L. Whitney, O. H. Simonds, and A. T. Linderman, were appointed to take the necessary steps to organize.

R. F. Johnstone made some remarks regarding the care and package of the fruit for Richmond, and the meeting adjourned.

JUNE MEETING.

Held at society's rooms, Fuller's Bank, June 5th, 1871. Vice President Holt in the chair.

Minutes of last meeting read and approved.

On motion, C. L. Whitney, O. H. Simonds, A. T. Linderman, S. L. Fuller, Ed. Bradfield, were appointed a committee to draft and report a constitution and by-laws at the regular meeting in July.

Mr. Suttle of the Valley City Greenhouses, Grand Rapids, brought before the meeting a luscious show of strawberries, among which was Bayden's Green's Prolific, considered by him worthy all the praises ever bestowed upon them; he having vines of this variety set last fall that he was sure would produce one quart of berries to the single plant. A discussion arose about which was the best variety to plant for general cultivation. Wilson's Albany seemed to retain its old standing as king.

Mr. Husted exhibited several varieties of peonies, also some twenty kinds of roses.

Mr. Suttle also had a fine collection of peonies and roses.

Chairman Holt exhibited a seedling, grown by him, which was in a perfect state of preservation, also English Russett.

WHAT SHALL WE DO WITH THE CURCULIO?

Being the question brought up informally, for discussion, and sulphur being spoken of as a preventive,

Mr. Bradfield said—I knew a person in my vicinity that tried the efficacy of putting sulphur around the plum tree, without any degree of success.

Mr. Suttle—I had a friend who tried a compound, composed

of sulphur and lime, which worked admirably the first season it was tried, but afterward it did not prove efficacious.

Mr. Husted—I have tried several methods, but have only had success with the old method of jarring off and destroying the pest.

Chairman Holt—I have a small orchard of plum trees, and make a practice of keeping the surface of the ground smooth and hard as possible, and by sweeping up the injured plums and burning them, manage to secure a good crop every year.

Meeting adjourned.

JULY MEETING.

The July meeting was held July 4, 1871.

This meeting, occurring on Independence Day, was not *very* largely attended. In the absence of the President and Vice Presidents, Mr. Geo. S. Linderman was elected President *pro tem.*, and stated the meeting was in accordance with the following call, which, under the new act, it was necessary should be published in a newspaper for three consecutive weeks prior to this meeting, which had been done:

NOTICE—There will be a meeting of the Michigan State Pomological Society at Fuller's Bank, Grand Rapids, Mich., on the first Tuesday in July, for the purpose of organizing under the statute. A general attendance is desired.

(Signed)

C. L. WHITNEY,
O. H. SIMONDS,
A. T. LINDERMAN,

And others.

On motion, the meeting adjourned until next day, at same place.

ADJOURNED MEETING, HELD JULY 5TH.

An adjourned meeting was held on the above day at Fuller's Bank. President Thompson in the chair.

Secretary Linderman read minutes, which were approved.

C. L. Whitney, from committee on constitution and by-laws, reported Articles of Association, which, on motion of S. L. Fuller, were accepted.

On motion of S. L. Fuller, they were considered by articles, amended, and adopted. (See articles of association.)

On motion of Mr. Bradfield,

Resolved, That we proceed to the election of officers by ballot.

A. T. Linderman acted as teller.

For President, Jonathan P. Thompson, unanimous.

On motion of Mr. Bradfield,

The balance of the officers to be elected, with the exception of the Executive Committee, be the same as have served in their respective positions since the last annual election.

The President instructed those favoring the entire re-election to vote—yes; those not favoring the entire re-election to vote—no. Upon examination of the ballots, eleven votes were cast, all—yes.

The President declared the same officers re-elected.

On motion of Mr. G. S. Linderman, that we proceed to the election of the Executive Committee, which resulted in the unanimous election of J. P. Thompson, S. L. Fuller, A. T. Linderman, N. P. Husted, C. L. Whitney, G. S. Linderman, Geo. Seagrove, James Hamilton, and H. E. Light.

On motion of Mr. Holt,

Resolved, That the matter of sending a delegation to the Richmond fair be referred to the Executive Committee.

On motion, meeting adjourned.

AUGUST MEETING.

Vice President Clubb in the chair.

Minutes of last three meetings read and approved.

Communication from Albert Junger, Chief Signal Officer U. S. A., was read, and, on motion of C. L. Whitney, it was referred to a committee of three, to report at next meeting.

The chair appointed C. L. Whitney, S. B. Peck of Muskegon, and Edward Bradfield of Ada, as such committee.

J. P. Thompson reported from Executive Committee, that no action had been taken by that committee about sending a delegation to the Richmond fair.

On motion of C. L. Whitney, report was accepted.

On motion of C. J. Deitrich,

Resolved, That this society proceed to collect fruit from various parts of the State, and to send to the Richmond fair, with a delegation.

On motion of S. L. Fuller, the question was divided, that of sending a delegation of five to the said fair coming first. Carried.

On motion of C. J. Deitrich,

Resolved, That we proceed to an informal ballot for such delegation.

On motion of J. P. Thompson, the five having the largest number of votes were declared unanimously elected.

H. S. Clubb, A. T. Linderman, C. L. Whitney, S. L. Fuller, and T. T. Lyon were accordingly declared unanimously elected as such delegation.

On motion of S. L. Fuller, the delegation have power to fill vacancy.

On motion of C. L. Whitney,

Resolved, That G. S. Linderman be requested to superintend the construction of the interior of Pomological Hall.

A communication was read by President Thompson from A. Thompson, of Otisco, which, on motion of A. T. Linderman, was requested for file.

Mr. Henry Holt of Cascade presented a pear for name.

On motion of A. T. Linderman, J. P. Thompson, E. Bradfield, and S. L. Fuller were appointed a special committee to whom said pear was referred for name.

On motion of President Thompson, H. P. Husted and Secretary Linderman were appointed a special committee to exhibit the specimens of fruit at Sweet's Hotel, in the evening. It was exhibited, however, by mutual consent, in Messrs. Fuller's Bank.

On motion of C. L. Whitney

Resolved, That when this meeting adjourned it be to the third Friday of August.

On motion of A. T. Linderman, the committee on constitution and by-laws be requested to report at the next meeting.

On motion of C. L. Whitney, meeting adjourned.

A. T. LINDERMAN,

Secretary.

SEPTEMBER MEETING.

Pursuant to previous announcement and standing rule, the Society met at Pomological Hall, on the ground of the Kent County Agricultural Society, and was called to order by the President, J. P. Thompson, in the chair.

The subject of county entries at the coming fair was fully discussed, and decided to be left open and free to any combination or individuals.

On motion of H. S. Clubb, a committee of five be appointed to correspond with the Board of the State Agricultural Society, and make arrangements to take a collection of fruit from this to the State Fair at Kalamazoo.

Seconded by Mr. C. L. Whitney, with amendment accepted, that decayed varieties might be supplied by solicitations.

Carried, and G. W. Dickinson was appointed such committee.

It was decided that hereafter all yearly memberships shall expire upon the day previous to the first day of the annual fair.

A communication from the Secretary, A. T. Linderman, referring to the California fair, was read, and C. J. Dietrich, Wm. I. Blakesly, and Geo. W. Dickinson were appointed to attend to the collecting and shipping of fruit and grain, to the State Agricultural Fair, at Sacramento, California.

It was declared that the Secretary would be on the fair ground, at Pomological Hall, on Monday next, for the purpose of receiving entries, to lessen the pressure of the following days.

Mr. E. Bradfield exhibited some fine samples of grapes.

Mr. C. J. Dietrich exhibited some fine samples of pears.

Mr. G. S. Linderman exhibited some fine samples of Trophy Tomato.

Mr. John M. Pratt was appointed a committee of one to act in Division A, special premiums offered by N. P. Husted, the original committee not being able to act.

There being no further business, meeting adjourned, to meet at Pomological Hall, on this ground, at 1 o'clock next Monday.

C. J. DIETRICH,

Secretary pro tem.

OCTOBER MEETING.

An invitation having been extended to the Society by the citizens of Spring Lake and vicinity, to hold its October meeting at Horticultural Hall, Spring Lake, a special car was furnished and half-fare granted the members from Grand Rapids for the trip, by Superintendent Bell, of the Detroit & Milwaukee Railroad.

A delegation met the excursionists at the Spring Lake depot, and, after escorting them through the substantial attractions of their magnificent hotel, conducted them to Horticultural Hall, a spacious room provided and used, as its name implies, solely for gatherings of this kind,—a hall of which the citizens have reason to be proud, but which is only representative of the strong interest and earnest enterprise evinced by the whole-souled inhabitants of this section in everything pertaining to Horticulture.

The President called the meeting to order, and delivered an address, in which allusion was made to the origin and career of the Society; to the great success which had attended its efforts to promote the interests of Pomology throughout the State; to the grand success of the last annual fair; to the size, pleasantness, beauty, and adaptability of "Pomological Hall" as compared with any other building of its kind in the West, if not in the United States; to the pertinacity of the Secretary in urging and working at the plan of exchanging our fruits for those of other States, and also with the American Pomological Society at Richmond, Va.; of his fear of its practicability at the time; of its final success; and of his desire to see the plan carried into operation to its utmost

extent the coming year; to the staunch friends of the Society along the lake shore in general; and to the beauty and fertility of the orchards around him, and the impossibility of overstocking the market demand for their luscious fruits.

Messrs. Gidley, Husted, Fassett, Hall, and Holt were appointed a committee to examine and report on the fruit on exhibition, of which quite a collection was formed by the united contribution of nearly every member.

The committee, having made an examination, reported through their Chairman, Mr. T. E. Gidley:

Mr. President and Members—Your committee, appointed to examine this fruit, find it to be fine indeed; the most popular the Wagener, Baldwin, Rhode Island Greening, and Peck's Pleasant. The Yellow Bellflower is only objectionable because it does not succeed well on heavy soils, and does not handle well, and the committee would recommend the four first and Golden Russet.

Thos. Wilde—How about the Red Canada?

Mr. Gidley—As a fruit it is very fine, its great objection being the difficulty to secure good healthy young trees for planting.

Mr. Thompson—How about the Northern Spy?

Mr. Gidley—The committee decline recommending it on account of its coming so late into bearing. When it does bear it is superb.

About sweet apples: the Tallman here is very fine, but I prefer the Baileys.

Mr. Wilde—I have seen a Northern Spy that last year bore until its limbs reached the ground. This year it does nearly as well.

Mr. Gidley—Would you recommend it for general cultivation?

Mr. Wilde—Not on light sand; but on all heavy soils.

Mr. Beckwith—I think the Spy valuable.

Mr. Fuller—I have lived within a few miles of the original tree, and I know of no apple I like better.

Mr. Wilde—Mr. President, if this discussion is to recommend a list of varieties to plant, I, for one, object to the Wagener apple heading the list. I have had ten years' experience with the Wagener; it bore well for the first six years, and then it was knotty, scabby, and diseased, and the limbs blighted. I would recommend it only as a dwarf; not for a place in the bearing orchard.

On motion, the report of the committee was accepted, and the committee discharged.

Mr. Chas. Soule—Mr. President, I have a statement prepared, partly from estimates and what I have seen, but largely from my own experience, showing the relative profit of planting an orchard to peaches or apples. This statement comprises a term of 20 years from time of planting, and I think clearly shows that we cannot afford to grow apples in the Peach Belt.

The following is the statement:

PEACHES AND APPLES COMPARED.

FIRST TEN YEARS.

PEACHES.		APPLES.	
Dr.		Dr.	
To 1 acre land, cleared.....	\$250 00	To 1 acre land, cleared	\$250 00
160 peach trees, @ 15c.....	24 00	40 apple trees, @ 25c.....	10 00
tillage of acre, 10 yrs, \$10...	100 00	tillage of acre, 10 yrs, \$10...	100 00
10 $\frac{3}{4}$ ct. interest on land and trees, 10 yrs.....	274 00	10 $\frac{3}{4}$ ct. interest on land and trees, 10 yrs.....	260 00
	<hr/>		<hr/>
	\$648 00		\$620 00
Cr.		Cr.	
By 4 crops peaches, \$100 to \$500 as per experience of writer,	\$1,500 00	By perhaps \$50 worth of apples,	50 00
	<hr/>	Balance Dr., 10 yrs.....	\$570 00
Balance Cr., 10 years.....	\$832 00		<hr/>
Balance in favor of acre of peaches.....			\$32 00
			<hr/>
			\$1,422 00

SECOND TEN YEARS.

DR.		DR.	
To cost of land, etc., and int....	\$648 00	To cost of land, int., etc., 1st	
interest on same 10 years....	648 00	10 years.....	\$620 00
tillage 10 yrs., @ \$10.....	100 00	int. on same 10 yrs.....	620 00
	<hr/>	tillage 10 yrs., @ \$10	100 00
	\$1,896 00		<hr/>
			\$1,340 00
CR.		CR.	
By profits of acre 1st 10 yrs....	\$1,500 00	By profits 1st 10 yrs.....	50 00
int. on profits 1st 10 yrs.....	1,500 00	profits 2d 10 yrs.....	500 00
int. on acre 2d 10 yrs.....	2,000 00		<hr/>
	<hr/>		\$550 00
	\$5,000 00		1,340 00
	1,896 00		<hr/>
	<hr/>		
Peaches Cr. end 20 yrs.....	\$3,604 00	Balance Dr.....	\$790 00

Mr. Gidley—I am happy to have Mr. Soule give figures that deny the statements of the article in the *Detroit Tribune*, to the effect that peach growing does not pay. We know it does, and had I the time I could demonstrate that our best peach lands, set to the right kinds, and fairly cultivated, will make more money from every ten acres than any one hundred acre farm pays in the State. There is, without question, more money in growing peaches, on suitable soil, in our “peach belt,” than in any other legitimate business open to the public.

It being stated that it was the desire of the citizens that the Society join in an excursion up Spring Lake, the meeting was adjourned until evening.

Two tugs were found to have been chartered for the occasion, and a pleasant trip made up to Fruitport, calling on the way at the vineyard of Mr. Hunter Savidge, and at the residence of Mr. J. B. Soule; each visit adding considerably to the tonnage of the crafts, in luscious Delaware and Concord Grapes.

A short call at the Pomona House, and back to the

EVENING SESSION.

Mr. Lyman Hall—Mr. Gidley, what would be your list of peaches for six hundred, if a person wanted no Crawfords?

Mr. Gidley—Well, there is the Barnard, I find it bears three bushels of peaches to the Crawford's two. I like the Barnard; it is the old Alberge. I would set 250 Barnards, 200 Reeve's Favorite, 100 Jacques Rareripe, 50 Susquehanna, 100 Old Mixon.

Mr. Wilde exhibited a seedling known as the Marvin Seedling, of fine size and flavor, and said to reproduce itself from the pit.

The time having arrived for departure, the sincere thanks of the Society were returned to the people of Spring Lake, for their magnificent entertainment, and the meeting adjourned.

NOVEMBER MEETING.

The November meeting was held at the Society's rooms, Fuller's Bank, November 7, 1871.

The Executive Committee were notified by letter that there would be a meeting of that committee in the forenoon of the 7th of November.

The President called the members to order, and made a few remarks relative to the business of the society and the success of the late exhibitions made at the Union Fair of Grand Rapids, and at the fair of the State Agricultural Society at Kalamazoo. He said that many members of the society had taken such an interest in its efforts to promote fruit-growing, that they had donated their premiums to it. It was also a question whether money premiums might not be dispensed with to a great degree, and articles substituted of equal value, which would serve as honorary testimonials, to be preserved in families, of the success which exhibitors had obtained. In Berkshire, Massachusetts, he had seen such awards highly valued as mementoes of the work done by one of the earliest established agricultural societies in the United States. He thought, also, that agricultural periodicals and journals would prove much more useful premiums than small sums of money, which disappeared and left no trace behind them.

Diplomas, also, were useful as testimonials of the success which had attended the efforts of members to grow certain kinds of fruit, and to show what were the capabilities of a farm, and its soil or location. It was time for the society to adopt a diploma, or some testimonial equivalent to it. He had been much gratified by a visit which he had made to the

Lowell Fair, where he had seen some collections of fruits that would have done honor to any exhibition. He considered Boston township one of the best apple-growing districts in the State, and was particularly pleased with the orchard of Mr. Joseph Stannard, an old settler. In the orchard he had six varieties of grapes, growing very luxuriantly, and among them were the Concord, Isabella, Delaware, and Catawba. Mr. Goss also had one of the finest exhibitions of apples he had ever seen; the specimens of Cayuga Redstreak, Maiden Blush, Baldwin, Wagener, being grown to a perfection that was admirable. He recommended that the premiums for collections of grapes, especially of the best grown Concords and Delawares, be included in future premium lists, and also that measures be taken to get out a diploma that would be adapted in its design to render it the first and most highly esteemed prize offered by the society.

Major H. E. Light of Greenville also seconded the recommendation.

Mr. Light offered the following resolution, which was adopted:

Resolved, That a committee of three be appointed to present a form or forms suitable for a diploma of the State Pomological Society, with a proposition for the printing of the same, and to report as soon as possible to the Executive Committee.

The President appointed A. T. Linderman, C. L. Whitney, and S. L. Fuller the committee.

Mr. Light also offered the following resolution:

Resolved, That at all future exhibitions of the society, the name and residence of the exhibitor, the name of the article exhibited, and other facts which will tend to throw light upon the exposition, be inserted upon the entry card attached to the article entered.

Secretary Linderman thought it was hardly advisable to determine upon such an important question at the present time. He felt sure that it was a change that the Executive

Committee had not power to act upon, and should be settled at a full meeting of the members.

The Committee on By-laws, consisting of Messrs. Whitney, Linderman, and Bradfield, were requested to report in the afternoon.

In the afternoon, Mr. P. B. King of Colorado was introduced to the members, and delivered an address upon the climate, soil, and agricultural resources of that Territory.

Mr. Pratt of Ionia, from the committee on orchards, which had been appointed to award certain premiums offered by Mr. Husted of Lowell, in connection with the Wagener apple, reported verbally. He said he had examined the orchards and fruit-growing capacities of the various counties and districts through which he had passed, and had come to the conclusion that the more eastern counties could not compete with the counties lying on the shores of the lake in the growing of the softer fruits, such as the berries, the plum, the cherry, and the peach. The facilities for handling and transportation afforded by the nearness to water carriage to such markets as Chicago and Milwaukee, are advantages for rendering this kind of fruit-growing profitable, and with which the interior counties cannot compete. About eight miles north of White Hall, there was a small orchard where the fruit was very perfect and free from worms; in fifty apples he found not more than four that had worms in them. Here was some grand farming land, although pine bearing. Eight miles south of Hart, in Oceana county, and near Pentwater, there was a grand tract of land, about 250 feet above the lake level, where he found the vineyard of Mr. Russell. He had never seen grapes grown in such profusion. No care had been given them, and they were allowed to run wild. Vines five years from the graft bore at the rate of a bushel to a bushel and a half of grapes. One variety particularly attracted his attention, but the name was unknown; others were the Iona, Concord, and Isabella.

Messrs. Judd and Hand's orchard of Wageners was in a very perfect state of cultivation. Trees low trimmed, and they bore largely. Trees were planted carefully in holes dug two feet deep and four feet wide, and filled with surface earth. Of 100 trees planted, all were alive. Cherries also were all alive and healthy. The orchard had grown a crop of potatoes. The first premium on apples and cherries was awarded to this orchard. The next orchard examined was that of George Smith of Walker, set out in usual form, but the trees were carefully planted. To this orchard the second premium on peaches and cherries was awarded.

J. S. Woolston was awarded the second premium on Wageners. His orchard is two miles south of Middleville. The soil was a clay loam, and the cultivation was good.

The next orchard was that of Martin Cook, in Gaines township. This section is remarkable for its rich, deep soil of black loam and gravel, and its heavy growth of timber, comprising bass, whitewood, maple, and other kinds. It is a high, rolling land, never affected by frost for the past eighteen years. He had fifteen acres of peaches, from which he sold one to two thousand dollars' worth of peaches. First premium was awarded for his orchard of Baldwin apples.

Next was the peach orchard of Mr. Close of Grattan. This was an orchard that it would do the eyes of any one good to see. He set out his trees from the 5th to the 10th of June, a period so late in the season we could not approve of as a general practice. Some of the trees had grown 68 inches in a year. He ran the cultivator through the trees every other week. The smallest growth was 38 inches. This orchard was the most clean and perfect in the county, and it was free from the peach worm. It was awarded the first premium as a peach orchard.

It is claimed that the Wagener orchards are more free from the apple worm than others; but it must be taken into

account that the orchards are younger in this section than in many portions of the State.

The President then read the following letters:

“NEWBURG, Orange Co., N. Y., Oct. 30.

“Our visit to Michigan was a pleasant and instructive one, and the portion of the State we visited seemed well adapted to fruit-growing, and, from all that I could learn, is one of the most profitable to the land-owner. The apples especially were fine, of good size and color, fair, and abundant. I observed, however, the codling moth beginning to show itself considerably, and it would be well for your fruit-growers to be on the alert and destroy them before they become too numerous. The best remedy I have seen is the shingle invention of D. B. Wier of Lacon, Illinois. Swine and cattle are also a help where they can be allowed to run in the orchard, and where not, the fruit should be picked up and given to them. This codling moth is becoming a serious drawback to fruit-growing, and if not checked will prove a great loss to the community, in a commercial point of view, as well as of a useful and healthful luxury in the family.

“The peach orchards around Spring Lake and other sections seemed vigorous and healthy, and appeared to be at home in the light sandy soil of that region; but while going through the orchards I was impressed with the notion that they were planting too largely for the demand, and of course would not be remunerated for their labor, unless they adopted some other modes to dispose of their surplus stock.

“When I was visiting the peach orchards of Delaware and Maryland, last August, I found at one place one of Alden’s Fruit Preserving Machines, where they dried eight bushels of peaches in an hour, keeping two sets of hands working day and night. It requires four hours to dry them. It is simply taking out the water, leaving all the fine flavor in the fruit; and when the fruit is wanted for use, add water and sugar sufficient to be palatable. The fruit, when so dried, can be

packed in a very small compass,—say strawberries and tomatoes in the space of five inches square,—which renders it easily and cheaply transported; and the demand for this kind of fruit, and also for canned fruit, will be great for many years to come. I have no private interest in this, nor in any other process; but, from what I saw, I think it will prove valuable where there is an extra quantity of fruit. Also, at one of the orchards, containing over a thousand acres, all the fruits were canned on the place, employing between five and six hundred hands, who were boarded and lodged on the premises, and all the work was there done, even to making the cans. Four thousand baskets were canned daily, requiring six teams to bring them to the house. I merely mention these modes of disposing of surplus fruit, that growers may know what to do if necessary.

“THE GRAPES.—I must say a word about Michigan grapes, which appeared healthy and productive, and in most localities I saw—even in the light, sandy soil around Spring Lake and the neighborhood—they were vigorous, healthy, and productive,—too productive, so I thought, for the good of vines the coming season. If the growers would get into the habit of thinning their fruit, taking out one-third, or even more, in unfavorable seasons, they would find it to their advantage in having earlier and better fruit, which would command better prices.

“I cannot close without again expressing my cordial thanks for the kind attentions I everywhere received during my visit in your State, the second week of October, and if my health is spared, I hope to visit you again some time earlier in the season, when it is not so cold and windy, and there is more variety of fruit to be seen.

“CHARLES DOWNING.”

THE KALAMAZOO GRAPE.

“KALAMAZOO, Oct. 28, 1871.

“A request has been made that I answer inquiries which have been made in reference to a grape exhibited this present fall at the exhibition of the Pomological Society at Grand Rapids, and also at the State Fair, held at Kalamazoo.

“This grape, named *here* by Mr. Davis the ‘Kalamazoo,’ I brought to this village some ten years since, from the city of Steubenville, in the county of Jefferson, and State of Ohio. There I found it in possession of Mr. Dixon, an Englishman, who informed me that he had grown the parent vine from seed that he knew had been taken from the Catawba. This vine I saw growing on a brick wall in the rear of his dwelling-house, and bearing at the time a large crop of well-matured fruit; this was in the early part of the month of September. Within a few years of this time, as I was advised, the dwelling-house on which this vine was growing was destroyed by fire, and with it the vine. This grape is a strong and rapid grower, generally maturing its wood well; the fruit is larger than the Catawba, and grows in bunches larger than those of that variety, and more marked in the peculiar richness of its deep blue bloom. I am informed by persons here who have experimented with the ‘Kalamazoo,’ that it is readily reproduced from cuttings, in soil with a proper mixture of clay. From my own observation, I should deem its season for ripening some ten days later than the Delaware. We had the ‘Kalamazoo,’ this year, grown here, and thoroughly ripe on the 15th of September. When I saw them at this date, the vines were growing on the grounds of Mr. Erasmus Davis, on soil nicely adapted to the cultivation of the grape, and the management skillful, and the grounds having the advantage of an abrupt slope to the east. Considering the prompt and vigorous growth of this vine, its hardiness, the facility of reproducing it in the open air from cuttings, its bearing qualities, and the

appearance and peculiarities of the fruit, I should deem it worthy to receive the careful attention of fruit culturists generally.

“H. G. WELLS.”

There was some discussion on the best means of preventing the injury effected by the apple-worm.

Mr. Whitney referred to the plan adopted by some, who use vessels of sweetened water hung on the trees.

Mr. J. W. Dickerson related how an orchardist had caught by this method four bushels of the moth in a single season, gathering the insects each day by straining the water through a cullender, and using it over and over again.

The Allen shingle process was explained, but it was patented. Pieces of shingles were fastened together with a screw, and screwed upon the stem of the tree. Here the insect sought protection through the winter in its chrysalis state, and was easily caught and destroyed by separating the shingles and killing the insects that had lodged between them.

A letter was read from Professor Cook of the Agricultural College, stating that he would visit the society at some of its meetings during the winter, and deliver a lecture on entomology.

A letter was read from Professor Tracy of the Agricultural College, stating that he would deliver a lecture on horticulture before the society at some future day.

The society then took up the subject of wasps and bees, and their destruction of grapes.

Mr. Bradfield had found the wasps tearing the Delaware grapes open, and thus destroying the berries, but he had never seen the bees attack the grape.

Mr. Sloeum exhibited some grapes raised on the bank of the river, with lime rock within eighteen inches of the surface. The location was not favorable on account of the frost. Had found the Delaware the hardiest. The Iona was uncertain,

and froze easily. Does not ripen well, and is not productive with him. Does not compare with the Delaware or Concord.

Mr. Linderman moved that the Concord be stricken from the list of the society as a grape recommended for general cultivation.

Mr. Schermerhorn said he had two hives of bees close by his grapes, but they never had been injured by them yet.

Mr. Glenn said that the prices of grapes in Chicago were in favor of the Delaware.

Mr. Whitney moved that the motion of Mr. Linderman be laid on the table for the present, and referred to a committee of three to report at the next meeting.

Mr. Holt of Cascade exhibited some very fine specimens of the Cayuga Redstreak, and some Beurre Diel and Vicar of Winkfield pears, and a Sweet Bough apple that had been kept till the present time.

The President then introduced the resolution relative to changing the entry cards at fairs, and called on Mr. Johnstone, Secretary of the State Agricultural Society, to give his opinion on the propriety of the change.

Mr. Johnstone said that he had visited several county fairs this year, and had found nothing in the entry cards save the number of the entry and the name of the class upon them, and that under the circumstances it was almost impossible to gain any information that was at all satisfactory. The agricultural and horticultural exhibitions were held for two purposes. One of these was for giving information to the public, in relation to what was being done in the district over which the society extended, and there were two methods of giving this information. The first of these was by the personal inspection of visitors, who were expected to come to such exhibitions, and whose contributions aid the societies in bearing their expenses and in paying their premiums. The other was through the press, which printed reports and gave such infor-

mation as was afforded to it. The entry cards were not to be considered alone for the instruction of the viewing committees, nor could they be considered as regulators that would control the judgment or decisions of the members of such committees. On the contrary, they should be explicit in giving all the information possible. If a member exhibited fruit in a certain class, the entry card, when it is placed on a collection or a single variety, should contain, first, the class in which the article was placed, second, the name of the exhibitor, who had grown the fruit, his place or residence, and the number of varieties in the collection. The exhibitors should be required to name, and place upon the fruits themselves the name of each fruit shown. This would prove satisfactory. In cases of single fruits, the name of the variety should be on the entry card. In its fruit exhibitions, the State society has a pomological committee, whose duty it is to go over, with the superintendent of the department, the fruits and correct their names, and see that they are correct, before they are submitted to the viewing committees. When fruit is thus exhibited, the visitors gain some knowledge of what the best fruits are like when they are grown to perfection, as it is supposed the exhibitors only show their best samples. In this way fruit-growers who look over the exhibition gain information; they also know, without any inquiry, where varieties are to be found which they may desire to possess. With regard to the press, it is not every reporter that is skilled enough in fruit to name at a glance the varieties which he sees, and it is most unsatisfactory to have to report that some No. 12 or No. 15 were fine collections of apples, or peaches, or pears, as the entry may be, but not to be able to give the least information as to what varieties composed them, who exhibited them, or where they were grown. Hence an entry card containing nothing but the number was of no earthly use to any one but the secretary and the viewing committee.

The second use of the entry card was to instruct the Viewing Committees in regard to what they were examining, and to enable them to know whether the article exhibited came under their jurisdiction. It was feared that if the members of the committee should know the names of the exhibitors their minds might be biased and their judgment perverted, on the principle that men were excluded from juries when they were able or intelligent enough to read. Just so it was thought that if the entry cards gave to the members of committees information which, as a general rule, they already possessed, their minds would be perverted, and their judgments and decisions corruptly rendered. In the experience of the Secretary, generally the committees made decisions liable to sharp criticism, more from not having information enough than from having too much. There were at all fairs decisions made that an expert would criticize severely, but in general they are made fairly and honestly and in accord with the views of the judges, and with their acquaintance with the subject.

It was here where the second principle for which fairs were established was to be considered. Fairs or exhibitions were institutions at which producers came forward for competition. The competition was for the purpose of deciding, as far as possible, which article of similar kinds was the best. The concealment effected by the blind entry card did not affect the competition one particle. Each of the competitors knew who was entered against him, and what the merits of the article were. No good, therefore, was gained by this attempted concealment, while, so far as the public was concerned, who came there to gain practical information, the affected concealment was really a hindrance of one of its most important aims and ends.

Mr. Johnstone cited several instances, as in the case of manufactured articles which were brought to fairs for the purpose of advertisement and publicity, and of making the people fully acquainted with their merits and the places where they

could be obtained. Of what use was a blind entry card in such cases to a committee in keeping their minds unbiased? No one who had given the subject a thought had any idea that a committee man who was for sale was hindered in the least by the blindness of the entry card. In fact, it rather helped to cover him up and hide his goings on. That, at least, was the opinion of the Secretary of the State Agricultural Society.

After some further discussion, the resolution was referred to the next meeting of the members, and the society adjourned to the first Tuesday in December.

DECEMBER MEETING.

The December meeting was held at the society's rooms, Fuller's Bank.

President Thompson in the chair.

The reading of the minutes of last meeting was postponed.

There was a very fine display of fruit from the Grand Traverse region. Mr. Geo. S. Parmelee of Old Mission, who moved from St. Joseph county to Grand Traverse some twenty years ago, has an orchard of about one hundred acres, on which he grows a large variety of fruits, and the apples and pears he sent were specimens of what well-established trees will do in that region. The sorts shown included the Fall Pippin, Baldwin, Rhode Island Greening, Maiden's Blush, Jonathan, Roxbury Russet, Golden Russet, Cayuga Redstreak, Ben Davis, and Golden Sweet. There were also some White Doyenne and Vicar of Winkfield pears. The Vicars were in good condition, but the others were much dried up. Nearly all of these were fine specimens of the various sorts, but the Rhode Island Greenings were remarkable as large, well colored, and handsome. The Cayuga Redstreaks were high colored and showy. The Roxbury Russets were noticed as being a smaller size than usual, but free from all russet on the skin, and some seemed inclined to doubt their genuineness. The Ben Davis was a medium-sized, longish, conical-shaped apple, a native of the Southern States, where it is much grown. There was also some discussion as to the apple shown as the Golden Sweet, a medium-sized apple, roundish, of a clear yellowish green, with a bright red blush on one side. Mr. W. V. Blakely of Grand Rapids pronounced it the Michael Henry

Pippin, of Thomas' Fruit Book. He was well acquainted with its introduction into Cass county, by an uncle of his, who lived at Portage, who presented him with some of them twenty-five years ago. Mr. Harrison of Painesville thought it was the Wells Sweeting, and generally there was an opinion that it was not the Golden Sweet, which is ripe, according to Downing, in August and September, while the Michael Henry Pippin is good from November to March, which this apple shown was evidently good for.

Mr. Jefferson Johnson of Cascade exhibited some magnificent Cayuga Redstreaks, grafted on seedlings, and the grafts only two years old. This he represents as one of his best bearing kinds, and as a fair and productive sort, highly recommended by the State Pomological Committee. At the East it is known as the "Twenty Ounce," and is so called by Downing and Thomas, who give our western name as a synonym, and state it a variety long grown in Connecticut, and its synonyms are "Morgan's Favorite," "Eighteen Ounce Apple," "Aurora," "Coleman," "Lima," "Wine of Connecticut." It is a variety that is growing popular in Western Michigan. Mr. Johnson says that its true origin is in Western New York, and that Downing is incorrect in calling it the "Wine of Connecticut;" nevertheless we incline, in the case of an apple that has such marked characteristics as this one, to lean to the opinion of Thomas and of Downing, while we prefer the name of Cayuga Radstreak as the best.

Mr. Johnson also presented a number of Red Canada winter apples, known also, as the Steel's Red Winter. These apples were small, but brilliant in color, and not the size of the Steel's Red, as grown in Wayne county. With these apples there was presented the following note by Mr. Johnson: "Grafted on seedlings. Graft four years old. A long keeper. Highly recommended by T. T. Lyon as the best winter market sort for Michigan. Elliott says it is probably a native of Massachusetts. Thomas calls it the Old Nonsuch of Massa-

chusetts, but Red Canada is preferred. Downing says 'it was formerly much grown in Massachusetts and Connecticut, but it is not much planted on account of its small size and poor fruit. But it has done well in Western New York and in this State.'" As these apples shown by Mr. Johnson were grown on very young trees, it may be well to wait and see whether future crops will not equal the fine first-class fruit produced by the orchards of Wayne county.

Mr. Bradfield presented three bottles of wine one year old, made from the Delaware, the Iona, and the Concord grapes. The Delaware was the most vinous in its flavor; that made from the Iona had been strongly sweetened, and was more of a cordial than a wine. Both of these were light in color, with just a trace of the pink of the grapes. The Concord was dark, and resembled the sour thin wines of the Moselle.

Mr. Haldine presented a bottle of wine made from the Isabella grape seven years ago; a very pleasant beverage; rather sweet, but evidently ripened by age.

Mr. Renwick, who has lately made an improvement in the economical heating of conservatories and greenhouses, presented a fine bouquet from his conservatory, composed of the flowers and foliage of rare plants.

The President called the meeting to order, and stated that the first business for the morning session would be the consideration of the resolution to discard the Concord grape from the list of fruits recommended by the society for general cultivation.

Mr. Ganzhorn read his report on the subject, as follows :

To the President, Executive Committee, and Members of the State Pomological Society :

In glancing over this subject, I perceived at once that in order to properly present it, the whole subject of grape culture would have to be considered. In this, I shall be as brief as possible. It is well known to the intelligent grape cultivator, that grape culture in its earliest stages in this country was a

failure, owing to the planting of foreign varieties. The great mistake was not learned until several generations had passed. And not until the present century was American grape culture developed to a success. As the foreign grape would not succeed in out-door culture, it had to be finally discarded, and grape culture came to a stand still.

If, therefore, the grape was to be cultivated here in the open air, the only dependence was upon the native grapes. If these could be improved so as to be worth cultivation, grape culture could be successful here, otherwise it was hopeless. Somewhat early in the present century the Isabella, said to have been found growing wild in South Carolina, was introduced in the Northern States. From this period, the grape culture in this country took new life.

THE ISABELLA

grape was widely planted, but still something better was looked for by those who desired a finer grape. About the year 1840 the Catawba grape was introduced by Major Adlum. This is a grape of higher character than the Isabella, but, except in favored locations, it does not ripen as far north by nearly a degree of latitude. So much value was placed upon this grape by its introducer, that he thought it worth more to the country than if he had paid the National debt. The Catawba spread itself rapidly over the country, and was the most popular grape in America for a number of years.

After thousands of acres had been planted, and the vineyards were apparently in a prosperous condition, having realized to their cultivators millions of dollars, a disease was developed known as the grape rot, which raged the severest where the Catawba was most extensively planted. This proved fatal and destructive. As speedily as the Catawba was once planted, so quickly it was again rooted out and replaced with varieties thought less liable to disease. At about this time the American grape-growers were greatly encouraged by their success in producing seedlings of improved quality from the

varieties of our native grapes that were first cultivated. Grape culture again rose with great spirit and enthusiasm.

The public invested millions of dollars annually in these new varieties. That the money spent on most of the new seedlings was lost, is a sad fact of the records.

Many of the new grapes that were of high quality either proved entirely worthless for general vineyard culture, or became popular only in certain localities. With the failure of these new candidates in the different parts of the country, heavy losses in time and money occurred. But all was not lost, for experimenting with new grapes was the means of educating the American grape-grower in the science of grape culture. Especially has it taught that a vine, to successfully mature its fruit, must have power in the leaf to withstand the rough weather and extreme changes to which the American climate is subject. We have made this step,—that by the leaf of a new grape vine we can judge to some extent of its adaptability to the climate and of the probable quality of the fruit. Now, when a promising new grape is introduced to us, we desire first to test its vigor and hardiness before planting it largely. And it was not until the origin of the Concord and its dissemination, that American grape culture became a substantial success.

THE CONCORD

was originated by E. W. Bull of Concord, Massachusetts, and its fruit was first exhibited at the fair of the Massachusetts Horticultural Society in 1853. The grape is so well known that a lengthy description is unnecessary here. Suffice it to say, that it sustains the reputation of being one of the largest and most showy of the black grapes. Its quality is very good. So hardy and vigorous is the vine, that it has stood the severest test known to American grapes. None surpasses it in productiveness. It stands at the head of the most reliable and uniform bearers. As a market grape it is the most profitable. No grape is known that brings so good results to the inexperi-

enced cultivator. More money is realized from it with the same outlay than any other grape. This is a faithful record since its introduction. Its progress and acceptance by the people have been steadily onward, until now it is claimed that more Concord vines are growing over the broad surface of our country than of all the other varieties put together; and the same fact seems to be substantiated of it as a fruit in the market.

In 1855, the Concord was started at Herman, Missouri. A few eyes of its wood were received, which were grafted on the Catawba. One of these grew, and after it bore, the fruit at once attracted attention, and vines were propagated as fast as possible. In 1863, that State, celebrated for grape culture, through its State Horticultural Association, unanimously voted the Concord at the head of the list of grapes for general cultivation. It sustains that place to this day. The Horticultural Society of Eastern Pennsylvania, the same year, voted it the same place. In 1864 it was reported from the State of Illinois that the whole peach crop was lost by the cold, the Catawba vines killed to the ground, and that the Concord was the only grape that bore a crop.

In the same year the Concord was reported, from Virginia, to surpass the Catawba in that State.

In 1865, Mr. William Saunders, the Superintendent of the Government Experimental Garden, at Washington, reported to the Pomological Society, that most visitors to his grapes gave the preference to the Concord.

In 1866, the Horticultural Society of the American Institute awarded \$100 premium to the Concord as the best grape for general cultivation, being the premium of Hon. Horace Greeley, the President of the Institute. This decision was made after a deliberation of two years, by the committee and after having all the leading varieties of grapes brought before them.

In 1867, the American Pomological Society, representing all

the United States and Canada, placed the Concord grape at the head for general cultivation, and thus far has not recalled its decision.

The societies of every State in the Union in which grape culture has become a prominent branch of industry have recommended the Concord as the most profitable grape for cultivation. The Concord succeeds in a greater area of territory than any other variety. It is known to be at home everywhere between the Gulf of Mexico and British America, and from the Atlantic to the Rocky Mountains. No grape has won for itself so glorious a representation in American grape culture. It has well deserved its name as the "grape for the million."

Since the grape as a table fruit is acknowledged to be conducive to health, as well as a luxury, it becomes important to the nation that a grape of good quality be cultivated, that can be placed within the reach of every man, woman and child, whether rich or poor. *This requisite is fully met by the Concord grape.*

Mr. C. L. Whitney of Muskegon read a report on the same subject, in which he agreed in sustaining this fruit as the grape for the people, until some variety was grown superior to it in all respects, as a strong grower, free from diseases, and able to withstand the climate, and also eminently productive of a fruit that was acceptable to every one.

Mr. J. P. Husted expressed his approval of the several reports, but there were some other considerations and facts which he would like to present, after having time to collate them, and at his request the consideration of the resolution was laid over until the next meeting.

The President introduced Mr. Harrison of Painesville, Ohio, who had made a tour in Europe during the past summer, and requested him to state what he had observed in connection with fruit-growing.

Mr. Harrison said in reply that so far as he had opportuni-

ties of seeing, the fruit crop of the past season in Europe had been a failure, and there was a general complaint of loss in the vineyards. Pears were a failure, so much so that the crop of seed was scarce. He had seen no pears there which would compare with those grown here. But fruit he considered cheaper there than here. In New York he had to pay twenty-five cents for a pear which he would have bought in the London market for two pence, or four cents. In regard to grape growing, the system was different, and a number of the vineyards which he had seen were composed of terraces built with stonework, sometimes six and eight feet in height, against the steep side hills. Vines were set close and severely pruned, and not permitted to grow the quantities of fruit which are grown in America. The plants stood only three feet apart, and sometimes not more than two and a half feet. Not having had the advantage of being familiar with the French language, he could not make the inquiries he would, and therefore he could only state his observations.

The President then read the report on the awards on orchards, made by Mr. T. T. Lyon, the chairman of the committee on orchards and gardens, which may be found in the list of premiums awarded at the fair.

A letter from J. Chapel of Eastmanville was read, relative to grapes, in which he says: "In regard to the grape question I will say that the Concord, Delaware, and Rogers No. 4 are the grapes for this part of the country. I have sixteen varieties in cultivation, and the three above named are all I would plant for general cultivation. The names of the other varieties I grow are Creveling, Hartford Prolific, Iona, Israella, Ives' Seedling, Miles, Rebecca, Salem, Rogers No. 15, Union Village, Diana, Northern Muscadine, and Catawba. These are all either poor bearers, or tender with me. I have fifteen varieties of raspberries in cultivation, and hope to be present and give you my experience with them at the January meeting."

A dispatch was received from W. H. Schuyler of Niles, stat-

ing that he could not arrive with his samples of preserved fruits, by the Alden process, before night.

The meeting was adjourned till after dinner. At 2 o'clock the members convened, and immediately proceeded to the election of officers for the ensuing year.

On motion, the ballot was taken for President, and J. P. Thompson, Esq., of Grand Rapids, was unanimously re-elected.

Mr. Thompson returned his thanks for this signal mark of the approval of the society of his action during the past year. This young and energetic society was exerting a most stimulating and useful influence in the State, and it had been his endeavor to promote that influence to the uttermost of his ability. He did not believe in being a mere figure-head. On the contrary, it was necessary that whoever was made the chief official of this society should lend it his whole influence and strength, and direct its efforts in such a practical way as would be felt throughout the State. The position of Michigan as a fruit-growing State, and the development of her resources in that direction, could not be overestimated. At present fruit-growing, though adding much to the wealth of the State, could only be considered in its nursery stage. This society was designed to protect it, and direct it while being developed to its full increase. Hence it was necessary that its action should be carefully weighed, and that as few mistakes as possible should be made. In this work he should esteem it his duty to work with both heart and hand, and if sometimes he overstepped the limits prescribed by the organization of the society, it should be regarded as prompted only by the zealous and enthusiastic regard he had to promote and advance the interests they all had at stake. The highly complimentary vote which had just been announced, he regarded as a mark of approval, which it should be his ambition to deserve as much in the future as it seemed he had in the past.

On motion, the society then proceeded to ballot for Treasurer, and S. L. Fuller of Grand Rapids was unanimously chosen.

On motion, a ballot was then taken for Secretary, and C. J. Dietrich of Grand Rapids was chosen.

On motion, a committee of three was appointed to nominate members of the Executive Committee and Vice Presidents of the Society. The committee, consisting of Messrs. G. W. Griggs, W. J. Blakesley, and Henry Gaylord Holt, reported the following names for members of the Executive Committee, which were duly elected:

N. P. Husted, Lowell; H. G. Light, Greenville; E. Bradfield, Ada; G. W. Dickerson, Grand Rapids; Charles S. Fassett, Spring Lake; W. J. Blakesley, Grand Rapids.

The committee reported that, in presenting these names, they were well aware it might seem as if they were all taken from one locality; but to make an executive committee efficient it was necessary that the officers should be within reasonable call. This society was obliged to hold monthly meetings, to promote the objects of the organization, and the Executive Board should be so situated that it would not be considered an onerous task or heavy expense to devote the time requisite to attend to its business. An executive committee scattered all over the State would not be such a board as could be relied upon to convene as often as the interests of the society required; and it had been found by experience that when the members were located together, and could meet frequently for consultation, it promoted a more healthy and vigorous action.

The committee then nominated the following Vice Presidents, who were duly elected:

Henry Holt, Cascade, Kent county; Hunter Savidge, Spring Lake, Ottawa county; George S. Parmelee, Old Mission, Grand Traverse county; T. T. Lyon, Plymouth, Wayne county; E. P. Kelsey, Ionia, Ionia county; Joseph Bray, Middleville, Barry county; B. Hathaway, Little Prairie Ronde, Cass county; I. E. Ilgenfritz, Monroe, Monroe county.

The following resolutions were adopted:

Resolved, That the thanks of the Michigan State Pomological Society are hereby tendered to T. H. Lyon, Jr., the proprietor of Sweet's Hotel, for the generous attentions accorded the society during its annual exhibitions of 1871, and for the use of his parlors in which its meetings were held.

Resolved, That the thanks of this society are due, and are hereby tendered, to the officers of the several railroad companies of the State, and especially to those of the Michigan Central Railroad, the Michigan Southern Railroad, the Detroit and Milwaukee Railway, and the Grand Rapids and Indiana Railroad, for their courtesies to the orchard committee, and for their reduction of railroad prices to our annual exhibitions.

The resolution relative to directing the Secretary to place the names and residences of exhibitors on the entry cards at the annual exhibitions, was brought up for consideration.

On motion of Mr. Bradfield, the resolution was amended so as to read as follows, and adopted :

Resolved, That at all future exhibitions of this society the name of the article exhibited, with the name of the exhibitor, and his place of residence, with the name of the grower of the fruit, be displayed upon the entry card : *Provided*, That when the entry is of a collection, the name of the exhibitor be given as that of the collector, while the name of the grower shall be upon each of the samples of fruits that make up such collection.

On motion, it was

Resolved, That this society accept the invitation to hold its annual exhibition in connection with the Northern Michigan Agricultural Society, on the same terms as were agreed upon last year.

The Committee on Financial Affairs made the following report, which was accepted :

To the President and Members of the State Pomological Society :

GENTS—Your committee appointed to audit the account of your Treasurer beg leave to report as follows, viz :

After a careful examination we find the receipts to be :

For Annual Membership.....	\$319 00
For Life Membership.....	60 00
For Northern Agricultural and Mechanical Society.....	1,033 00
From miscellaneous sources.....	22 00
<hr/>	
Total receipts.....	\$1,439 00

We find vouchers for the following expenditures:

For postage.....	\$18 00
For Printing.....	213 54
For Expenses, incidental.....	173 95
For premiums.....	657 63
<hr/>	
Total amount expended.....	\$1,063 11
<hr/>	
Leaving balance in hands of Treasurer.....	\$375 83
<hr/>	

In the course of the examination we find a voucher of \$43 30, accompanied by a conditional note made by A. T. Linderman, to the effect that should the society not allow the account (which was for his expenses to Richmond), that the amount should be reported. Your committee would recommend the society to take up this matter and decide so that the conditional paper may be taken up.

Your committee also find some \$10 00 paid into the hands of G. S. Linderman, which we had not the slightest doubt but that it had been properly expended,—but yet there was no account or statement as to how the amount had been expended, nor for what. Your committee would recommend that in future all parties handling the society's money should be required to render a complete detailed account of the disposition of the same; which account should accompany the voucher, thus enabling the committee to report to the society the proper expenditures.

Your committee find the Treasurer's accounts all plain and correct, and have closed his accounts with the society up to December 1st inst.

Since making up the above report, Mr. G. S. Linderman has put into the hands of your committee a detailed account of

the amount of money above referred to, and shows a balance of \$7 60 in his hands. His account rendered is found correct.

All of which is respectfully submitted.

C. J. DIETRICH,

A. T. LINDERMAN.

Dated, December 5th, 1871.

On motion it was

Resolved, That the account of Mr. Linderman be settled, it having been examined and found correct.

The publication of the annual report being considered, on motion of Mr. Bradfield, it was

Resolved, That Mr. A. T. Linderman be appointed to superintend the publication of the annual reports, as prepared by him.

The society then adjourned to meet on the first Tuesday of January, 1872.

OFFICERS, RULES AND REGULATIONS, AND PREMIUM LIST
OF THE
SECOND ANNUAL FAIR
OF THE
MICHIGAN STATE POMOLOGICAL SOCIETY,
HELD IN CONNECTION WITH THE
Northern Michigan Agricultural and Mechanical Society as a
Union Fair, at the City of Grand Rapids, on Tuesday,
Wednesday, Thursday, and Friday, September
12, 13, 14, and 15, 1871.

OFFICERS OF THE DAY.

GENERAL SUPERINTENDENT.

GEORGE S. LINDERMAN, Grand Rapids.

ASSISTANT.

H. GAYLORD HOLT, Cascade.

SUPERINTENDENT OF FRUIT DEPARTMENT.

NOAH P. HUSTED, Lowell.

ASSISTANTS.

OMAR H. SIMONS, Grand Rapids.

H. E. LIGHT, Greenville.

SUPERINTENDENT OF FLORAL DEPARTMENT.

CHAUNCEY L. WHITNEY, Muskegon.

ASSISTANTS.

MRS. E. T. NELSON, Grand Rapids.

MRS. W. B. PARSONS, Paris.

POMOLOGICAL COMMITTEE.*

JAMES D. HUSTED, Lowell.

HENRY HOLT, Cascade.

TOWNSEND E. GIDLEY, Grand Haven.

T. J. RAMSDELL, Manistee.

W. I. BLAKELY, Grand Rapids.

*This committee will be given the charge of the nomenclature of the fruits exhibited, and before any examination shall be made by the viewing committees, the pomological committee will examine all specimens, and correct the names of varieties which may be wrongly named by the exhibitors, affixing a doubtful mark in cases where the name of the variety shown may be uncertain.

RULES AND REGULATIONS.

This Fair will be held on the grounds of the Kent County Agricultural Society, and on the 12th, 13th, 14th, and 15th of September, 1871, in connection with the Fair of the Northern Michigan Agricultural and Mechanical Society.

Individuals who wish to join the society can do so by the payment of one dollar. Life membership, ten dollars. It is desirable that all persons interested in its objects should join the society, and it is expected that all exhibitors of articles will become members.

Fruit-growers, and persons interested in fruit culture, are earnestly invited to become exhibitors.

All entries of all articles for exhibition must be made at the office of the Secretary, at Pomological Hall, on the Fair Ground, on the first day of the Fair, or by 12 o'clock M. of the second day.

Entries may be made for exhibition without competition; and awarding committees in the several classes may notice such as they shall deem worthy, in their reports. But all such entries must be made by a member of the society.

There will be a Superintendent of each Department, who will have the general charge and arrangement of the articles exhibited, and to whom, with the articles, must be delivered correct lists of the specimens and varieties entered by each exhibitor.

The several specimens and varieties shown by any exhibitor should be labeled with the name by which they are known to such person.

All doubtful cases which any special viewing committee

either may not or cannot decide, may be referred to the pomological committee for final adjudication.

Exhibitors entitled to first premiums will be allowed to take in place thereof the diploma of the society.

Members of awarding committees are requested to inform the Secretary of their acceptance as soon as they are notified of their appointment. Upon their arrival at the Fair Grounds they will report to the Secretary on or before 12 o'clock M. on the second day. A vacancy on any committee may be reported to the Executive Committee, who shall fill such vacancies in the usual manner.

Members of awarding committees are requested to report promptly for duty on Wednesday, at 1 o'clock P. M., and their reports, in writing, must be handed to the Secretary by 12 M., on Thursday.

No person who is an exhibitor can act as a judge on the class in which he exhibits.

Exhibitors, when requested, are expected to make written or verbal statements respecting their contributions.

As one great object of the Society is to collect valuable information upon pomology, the several committees are requested to gather all the information possible from the exhibitors in their classes, and to make their reports as full as time and circumstances will permit.

When articles are not deemed worthy of a premium, the judges will, in all cases, withhold it.

Any article entered for exhibition in one class shall not compete for a premium in any other.

Under no circumstances will the name of exhibitor appear on the entry card.

When the judges have made their decisions, premium badges will be attached to the fruit. First premium, a blue ribbon; second premium, a red ribbon; also elegant blue and red cards will be attached to the successful entry, bearing the name of the exhibitor.

Exhibitors are requested, as far as possible, to furnish to the Secretary a list of the entries they wish to make, with the division and class under which they desire each article to compete, noted thereon. Attention to this matter will facilitate the entries very much. All entries in Division A must be made before August 1st, 1871. (See note in Division A).

Fruit will be marked with cards furnished by the Secretary, designating the class and number of entry; and during the exhibition all articles must be placed entirely under the management of the officers of the society.

All articles entered for exhibition will be required to remain on the grounds during the days of exhibition, under penalty of forfeiture of the right to premium, unless permitted by the Superintendents to take them off the grounds.

When a majority of the viewing committee are present, they shall constitute a quorum, and be authorized to award premiums; and the first on the list of those present shall be chairman.

No person will be allowed to sell the articles they have on exhibition until special permission is granted by the Superintendent.

Short addresses will be delivered at Pomological Hall, on Thursday afternoon, by prominent gentlemen who are expected to be present.

THE PRESS.

For the convenience of editors and reporters of the press, accommodations will be provided, and every facility will be afforded them to obtain and transmit information. A committee of reception from the press will receive their brethren from abroad, on the field, and further the purpose of their coming. They are requested to announce themselves on arrival, and to present their names or credentials at the Secretary's office on the grounds, when they will be furnished with cards of admission.

Committee on Reception of Representatives of the Press.—A. B. Turner, C. B. Smith, M. H. Clark, E. F. Harrington, and C. C. Sexton, Grand Rapids.

INVITED GUESTS.

Committee on Reception of Invited Guests.—L. H. Randall, Wilder D. Foster, S. L. Fuller, Ransom E. Wood, Charles H. Taylor, Moses V. Aldrich, Wm. A. Howard, P. R. L. Pierce, E. P. Fuller, Martin L. Sweet, Robert P. Sinclair, John W. Pierce, R. C. Luce, S. L. Withey, C. C. Comstock, James Miller, John T. Holmes, C. C. Rood, W. S. Gunn, Harvey J. Hollister, and John Clancy, all of Grand Rapids.

TRANSPORTATION.

The following railroad and steamboat companies have agreed to reduced rates of transportation for passengers and freight to the Union Fair at Grand Rapids:

RAILROADS.—Michigan Central and branches, Michigan Southern and branches, Detroit and Milwaukee, Grand Rapids and Indiana, Michigan Lake Shore, Chicago and Michigan Lake Shore.

STEAMBOAT LINES.—Engelmann Line, from Milwaukee and lake shore harbors, Goodrich Line, from Chicago and other lake ports, Grand River Steamboat Line.

MICHIGAN STATE POMOLOGICAL SOCIETY.

LIST OF PREMIUMS.—OPEN TO ALL COUNTIES AND TOWNSHIPS, AND
CITIZENS OF THE STATE.

DIVISION A—FRUITS, ORCHARDS, AND GARDENS.

All entries in this Division must be made on or before August 1st, by letters addressed to the Secretary, A. T. Linderman, Drawer 2626, Grand Rapids, Mich., which should state first, the location; second, the best route by which the committee can reach the place from Grand Rapids; third, a full description of the entry as to number, age, variety, etc.; fourth, under which class it is desired that the entry shall compete; fifth, the postoffice address of the exhibitor. It is expected that, upon notification, the exhibitor will meet the committee upon arrival at the nearest railroad station, and conduct them to the place where the examination is to be made.

Committee—T. T. Lyon, Plymouth; Henry S. Clubb, Grand Haven; Chancy L. Whitney, Muskegon; A. T. Linderman, Grand Rapids; Henry Holt, Cascade.

Class 1—Best apple orchard, not less than two acres, in full bearing,....	Diploma or \$20
Second best apple orchard, not less than two acres, in full bearing.....	10
Class 2—Best apple orchard, planted not over five years.....	Diploma.
Class 3—Best apple orchard, planted not over two years.....	Diploma.
Class 4—Best pear orchard, not less than one-quarter acre, in full bearing.....	Diploma or 20
Second best pear orchard, not less than one-quarter acre, in full bearing.....	10
Class 5—Best young pear orchard, planted not more than five years....	Diploma.
Class 6—Best peach orchard, not less than one acre, in bearing....	Diploma or \$20
Second best peach orchard, not less than one acre, in bearing.....	10
Class 7—Best young peach orchard, planted not over five years.....	Diploma.
Class 8—Best young peach orchard, not less than ten acres, and not planted more than two years.....	Diploma
Class 9—Best plum orchard.....	Diploma.
Class 10—Best cherry orchard.....	Diploma.
Class 11—Best quince orchard, not less than one-eighth of an acre, in bearing.....	Diploma,
Class 12—Best vineyard in bearing, not less than one acre.....	Diploma or \$20
Second best vineyard in bearing, not less than one acre.....	10
Class—13—Best young vineyard, not planted over three years, nor less than one acre.....	Diploma.
Class 14—Best Delaware vineyard.....	Diploma.
Class 15—Best Concord vineyard.....	Diploma.

Class 16—Best small fruit garden, including strawberries, blackberries, raspberries, and currants.....	Diploma.
Second best small fruit garden, including strawberries, blackberries, raspberries, and currants.....	\$5
Class 17—Best plat of strawberries, not less than one acre.....	Diploma.
Class 18—Best plat of raspberries, not less than one-half acre.....	Diploma.
Class 19—Best plat of blackberries, not less than one-half acre.....	Diploma.
Class 20—Best plat of currants, not less than one-half acre.....	Diploma.
Class 21—Best plat of gooseberries, not less than one-half acre.....	Diploma.
Class 22—Best suburban ornamental grounds.....	Diploma.
Class 23—Best ornamental grounds belonging to a farm residence.....	Diploma.
Class 24—Best cultivated and ornamented city or village lot.....	Diploma.
Class 25—Best and most tastefully arranged flower garden.....	Diploma.
Class 26—Best general nursery.....	Diploma.
Class 27—Best private conservatory.....	Diploma.
Class 28—Best general greenhouse.....	Diploma.

SPECIAL PREMIUMS OFFERED BY N. P. HUSTED.

For the best peach orchard, not less than 300 trees, selected from the following varieties: Early Crawford's, Late Crawford's, Hale's Early, Stamp the World, and Smock Free; \$15 for the first, \$10 for the second, and \$5 for the third.

For the best cherry orchard, not less than 50 trees, from the following varieties: Early Richmond, Belle Magnifique, Governor Wood, May Duke, Napoleon, Bigarreau, Yellow Spanish, and Knight's Early Black; \$15 for the first, \$10 for the second, and \$5 for the third.

PREMIUMS ON APPLE ORCHARDS.

For the best Wagener orchard set from trees two years old from the nursery, not less than 100 trees, first \$15, second \$10, and third \$5.

For the best Golden Russet orchard, trees two years old from the nursery, not less than 100 trees, first \$15, second \$10, and third \$5.

For the best Baldwin orchard, trees two years old from the nursery, not less than 100 trees, first \$15, second \$10, and third \$5.

\$100 sweepstakes premium, \$50 for the second, \$25 for the third—for the best orchard to contain not less than 500 apple trees, two years from the nursery, of the following varieties: Wagener, Golden Russet, and Baldwin. Not less than 500 peach trees of the following varieties: Crawford's Early, Crawford's Late, Hale's Early, Stamp-the-World, and Smock Free. Not less than 100 cherry trees of the following varieties: Early Richmond, Belle Magnifique, Governor Wood, May Duke, Napoleon, Bigarreau, Yellow Spanish, and Knight's Early Black.

The above premiums to be paid to our customers who purchase their trees from us this spring, and exhibit the best orchard this fall, as decided by the committee.

NOAH P. HUSTED.

Office of the Grand River Nurseries,
LOWELL, MICH., March 13, 1871.

DIVISION B—STATE, COUNTY, AND TOWNSHIP COLLECTIONS.

Committee—S. L. Fuller, Grand Rapids; John S. Gage, Dowagiac; Fletcher Fowler, Black Lake; George Parmelee, Old Mission; S. O. Knapp, Jackson.

NOTE.—There will be a grand display of collections of fruits from most of the States and Territories of the United States, at the Fair of this Society. This display alone will be worth many times the price of admission. The merits of these collections will be left to the discretion of this committee.

Class 1—Best State collection of fruits.....	
Class 2—Best collection from any one county in the State.....	\$100
Second best.....	50
Class 3—Best collection from any one township in the State.....	50
Second best.....	25
Class 4—For the best collection of the varieties recommended by the Michigan State Pomological Society for general cultivation*	\$10 and 5
Class 5—Best collection of fruits grown by exhibitor.....	Diploma or \$20
Second best.....	10
Class 6—Best collection of fruits exhibited by any individual†.....	20

* NOTE.—The varieties recommended by this society, referred to above, include the following: For summer use—The Red Astrachan, Sweet Bough, and Duchess of Oldenburg. For autumn use—Fall Pippin, Cayuga County Redstreak, Snow, Jersey Sweet, Maiden's Blush. For winter use—Baldwin, Wagener, Golden Russet, Rhode Island Greening, Tallman Sweet, Hubbardston Nonsuch, Northern Spy.

Exhibitors to obtain the above premiums must exhibit at least twelve of the above varieties.

† NOTE.—This premium is offered in order that any person desiring to exhibit a fine collection of fruits, procured from any and all sources, may have the opportunity. But in all other cases it is to be strictly insisted upon that the exhibition from any State, county, township, or individual shall be the production of the State, county, township, or individual exhibiting the same.

DIVISION C—APPLES.

Committee—Judge J. G. Ramsdell, Grand Traverse; A. S. Stannard, South Boston; G. W. Dickinson, Grand Rapids; Geo. Taylor, Kalamazoo; Myron H. Norton, Smyrna.

	1st.	2d.
Class 1—Best peck, any one variety, summer apples.....	\$2 00	\$1 00
Class 2—Best peck, any one variety, autumn apples.....	2 00	1 00
Class 3—Best peck, any one variety, winter apples.....	2 00	1 00
Class 4—Best single variety summer apples, not less than 6 specimens	1 00	50
Class 5—Best single variety of autumn apples, not less than six spec- imens.....	1 00	50
Class 6—Best single variety of winter apples, not less than six spec- imens.....	1 00	50
Class 7—Best peck Sweet Bough.....	1 00	50
Class 8—Best peck Red Astrachans.....	1 00	50
Class 9—Best peck Duchess of Oldenburg.....	1 00	50
Class 10—Best peck Fall Pippin.....	1 00	50
Class 11—Best peck Cayuga County Redstreak.....	1 00	50
Class 12—Best peck Maiden's Blush.....	1 00	50
Class 13—Best peck Snow.....	1 00	50
Class 14—Best peck Jersey Sweet.....	1 00	50
Class 15—Best peck Wagener.....	1 00	50
Class 16—Best peck Baldwin.....	1 00	50
Class 17—Best peck Greenings.....	1 00	50
Class 18—Best peck Northern Spy.....	1 00	50
Class 19—Best peck Golden Russet.....	1 00	50
Class 20—Best peck Hubbardston Nonsuch.....	1 00	50
Class 21—Best peck Tallman Sweet.....	1 00	

	1st.	2d.
Class 22—Best peck Early Harvest.....	\$1 00	\$0 50
Class 23—Best peck Red June.....	1 00	50
Class 24—Best peck Golden Sweet.....	1 00	50
Class 25—Best peck William's Favorite.....	1 00	50
Class 26—Best peck Summer Pearmain.....	1 00	50
Class 27—Best peck Early Strawberry.....	1 00	50
Class 28—Best peck Primate.....	1 00	50
Class 29—Best peck Keswick Codling.....	1 00	50
Class 30—Best peck Porter.....	1 00	50
Class 31—Best peck Hawley.....	1 00	50
Class 32—Best peck Gravenstein.....	1 00	50
Class 33—Best peck St. Lawrence.....	1 90	50
Class 34—Best peck Autumn Strawberry.....	1 00	50
Class 35—Best peck Fall Orange.....	1 00	50
Class 36—Best peck Rambo.....	1 00	50
Class 37—Best peck Autumn Swaar.....	1 00	50
Class 38—Best peck Peck's Pleasant.....	1 00	50
Class 39—Best peck Steele's Red.....	1 00	50
Class 40—Best peck Swaar.....	1 00	50
Class 41—Best peck Jonathan.....	1 00	50
Class 42—Best peck Esopus Spitzenburg.....	1 00	50
Class 43—Best peck King of Tompkins County.....	1 00	50
Class 44—Best peck Grimes' Golden.....	1 00	50
Class 45—Best peck Roxbury Russet.....	1 00	50
Class 46—Best peck Rome Beauty.....	1 00	50
Class 47—Best peck Fallwater.....	1 00	50
Class 48—Best peck Rawles' Janet.....	1 00	50
Class 49—Best peck Wine Sap.....	1 00	50
Class 50—Best peck Ben Davis.....	1 00	50
Class 51—Best peck Willow Twig.....	1 00	50
Class 52—Best peck Yellow Bellflower.....	1 00	50
Class 53—Best peck Seek-no-further.....	1 00	50
Class 54—Best peck White Winter Pearmain.....	1 00	50
Class 55—Best peck any other variety.....	1 00	50
Class 56—Best collection of apples, grown by exhibitor.....	10 00	5 00
Class 57—Best collection of Siberian Crab apples.....	1 00	50
Class 58—Best single variety Siberian Crab, not less than 20 specimens.....	1 00	50
Class 59—Best 20 specimens Transcendent Crab.....	1 00	50
Class 60—Best 20 specimens large Red Crab.....	1 00	50
Class 61—Best 20 specimens Montreal Beauty.....	1 00	50
Class 62—Best 20 specimens Hyslop.....	1 00	50

DIVISION D—PEARS.

Committee—Judge Louis S. Lovell, Ionia; C. Davis, Kalamazoo; Darius Boynton, Benton Harbor; H. E. Light, Greenville; J. N. Smith, St. Johns.

	1st.	2d.
Class 1—Best collection pears, not less than six varieties.....	\$2 00	\$1 00
Class 2—Best peck summer pears, one variety.....	1 00	50
Class 3—Best peck autumn pears, one variety.....	1 00	50
Class 4—Best peck winter pears, one variety.....	1 00	50
Class 5—Best single variety summer pears, not less than six specimens.....	1 00	50

	1st.	2d.
Class 6—Best single variety of autumn pears, not less than six specimens.....	\$1 00	\$0 50
Class 7—Best single variety of winter pears, not less than six specimens.....	1 00	50
Class 8—Best plate Bartlett's.....	50	25
Class 9—Best plate Flemish Beauty.....	50	25
Class 10—Best plate Louise Bonne de Jersey.....	50	25
Class 11—Best plate White Doyenne.....	50	25
Class 12—Best plate Duchess d'Angouleme.....	50	25
Class 13—Best plate Seckel.....	50	25
Class 14—Best plate Vicar.....	50	25
Class 15—Best plate Suerre Diel.....	50	25
Class 16—Best plate Sheldon.....	50	25
Class 17—Best plate Buffam.....	50	25

DIVISION E—PEACHES.

Committee—S. B. Peck, Muskegon; James Hamilton, Big Rapids; George Seagrope, Spring Lake; Isaac S. Linderman, South Haven; Asa W. Slayton, Grattan.

	1st.	2d.
Class 1—Best collection of peaches, not less than six varieties.....	\$2 00	\$1 00
Class 2—Best half-peck of early peaches.....	1 00	50
Class 3—Best half-peck late peaches.....	1 00	50
Class 4—Best half-peck Clingstones.....	1 00	50
Class 5—Best dish single variety of peaches, not less than six specimens.....	1 00	50
Class 6—Best plate Early Crawford.....	1 00	50
Class 7—Best plate Early Barnard.....	1 00	50
Class 8—Best plate Smock Free.....	1 00	50
Class 9—Best plate Late Crawford.....	1 00	50
Class 10—Best plate Stump-the-World.....	1 00	50
Class 11—Best plate Hill's Chili.....	1 00	50
Class 12—Best plate Newcomb's Seedling.....	1 00	50
Class 13—Best plate Hale's Early.....	1 00	50
Class 14—Best plate Mountain Rose.....	1 00	50
Class 15—Best plate Early York.....	1 00	50
Class 16—Best plate George IV.....	1 00	50
Class 17—Best plate of any variety not mentioned above.....	1 00	50

DIVISION F—GRAPES.

Committee—E. Bradfield, Ada; Hunter Savidge, Spring Lake; Wm. Haldane, Grand Rapids; J. P. Nixon, St. Johns; J. G. Ramsdell, Manistee.

	1st.	2d.
Class 1—Best collection of native grapes, not less than four varieties.....	\$10 00	\$6 00
Class 2—Best ten pounds native varieties.....	1 00	50
Class 3—Best five pounds of Concord.....	1 00	50
Class 4—Best five pounds of Clinton.....	1 00	50
Class 5—Best five pounds of Isabella.....	1 00	50
Class 6—Best five pounds of Delaware.....	1 00	50
Class 7—Best five pounds of Iona.....	1 00	50
Class 8—Best five pounds of Diana.....	1 00	50
Class 9—Best five pounds of Ives' Seedling.....	1 00	50

	1st.	2d
Class 10—Best five pounds Martha.....	\$1 00	\$0 50
Class 11—Best five pounds Hartford Prolific.....	1 00	50
Class 12—Best five pounds Eunelan.....	1 00	50
Class 13—Best five pounds Adirondac.....	1 00	50
Class 14—Best five pounds Catawba.....	1 00	50
Class 15—Best collection of foreign grapes.....	1 00	50
Class 16—Best single variety of foreign grapes.....	1 00	50
Class 17—Best clusters of Rogers' Hybrids, Nos. 8, 14, 19, 33.....	1 00	50
Class 18—Best six clusters of any other numbers of Rogers' Hybrids not mentioned.....	1 00	50
Class 19—Best plate of any valuable variety not mentioned above.....	1 00	50
Class 20—Greatest number of varieties of native grapes grown by exhibitor.....	5 00	

DIVISION G—PLUMS, APRICOTS, AND NECTARINES.

Committee—C. L. Shepherd, Muskegon; Charles Alford, Lamont; J. L. Taxbury, Casenovia; Milo Rowe, Black Lake; W. S. Farmer, Berrien.

	1st.	2d.
Class 1—Best plate Yellow Egg plum.....	\$1 00	50
Class 2—Best plate Red Egg plum.....	1 00	50
Class 3—Best plate Washington plum.....	1 00	50
Class 4—Best plate Lombard plum.....	1 00	50
Class 5—Best plate Columbia plum.....	1 00	50
Class 6—Best collection of plums.....	2 00	1 00
Class 7—Best one-half peck plums, single variety.....	1 00	50
Class 8—Best collection of Apricots.....	2 00	1 00
Class 9—Best one-half peck of Apricots, single variety.....	1 00	50
Class 10—Best collection of Nectarines.....	2 00	1 00
Class 11—Best one-half peck Nectarines, single variety.....	1 00	50

CLASS H—SEEDLING FRUITS.

Committee—B. Hathaway, Little Prairie Ronde; E. U. Knapp, Grand Rapids; S. O. Pearfall, Alpine; Jacob Ganzhorn, Spring Lake; Stephen Rossman, Greenville.

	1st.	2d.
Class 1—Best collection of seedling fruits.....	\$5 00	
Class 2—Best seedling summer apple.....	1 00	\$0 50
Class 3—Best seedling autumn apple.....	1 00	50
Class 4—Best seedling winter apple.....	1 00	50
Class 5—Best seedling strawberry.....	1 00	50
Class 6—Best seedling grape.....	1 00	50
Class 7—Best seedling apple.....	1 00	50
Class 8—Best seedling peach.....	1 00	50
Class 9—Best seedling pear.....	1 00	50
Class 10—Best seedling plum.....	1 00	50
Class 11—Best seedling quince.....	1 00	50
Class 12—Best seedling Siberian Crab.....	1 00	50

NOTE.—Specimens of the above seedling fruits, it is expected, will be accompanied with history, origin, and such other information as may be useful to characterize the fruit.

Premiums for seedlings may be awarded to others beside the original producer, when it is shown that the originator does not compete.

Exhibitors of seedlings must not expect a premium because the fruit exhibited is

a "seedling." It must have merit equal to well-known varieties, the object being not to encourage inferior sorts.

DIVISION I—QUINCES, CRANBERRIES, NUTS, AND SMALL FRUITS.

Committee—S. R. Sanford, Muskegon; C. J. Dietrich, Grand Rapids; Geo. M. Dewey, Hastings; D. C. Henderson, Allegan; Henry Allen, Paris.

	1st.	2d.
Class 1—Best collection of quinces.....	\$2 00	\$1 00
Class 2—Best peck quinces, single variety.....	1 00	50
Class 3—Best peck cranberries.....	1 00	50
Class 4—Best collection of native nuts.....	3 00	2 00
Class 5—Best collection of foreign nuts.....	3 00	2 00
Class 6—Best half-peck hazel nuts.....	1 00	50
Class 7—Best half-peck hickory nuts.....	1 00	50
Class 8—Best quart of American chestnuts.....	1 00	50
Class 9—Best quart Spanish chestnuts.....	50	25
Class 10—Best half-peck butternuts.....	1 00	50
Class 11—Best half-peck black walnuts.....	1 00	50

NOTE.—Discretionary premiums will be allowed on all small fruit exhibited.

DIVISION J—DRIED FRUITS AND PICKLES.

Committee—Mrs. S. L. Fuller, Grand Rapids; Mr. and Mrs. Joseph Beech, Battle Creek; Mrs. C. C. Rood, Grand Rapids; Mrs. W. F. Wood, Muskegon.

	1st.	2d.
Class 1—Best collection of dried fruits.....	\$2 00	\$1 00
Class 2—Best half-peck dried apples.....	1 00	50
Class 3—Best quart dried pears.....	1 00	50
Class 4—Best quart dried peaches.....	1 00	50
Class 5—Best quart dried plums.....	1 00	50
Class 6—Best quart dried cherries.....	1 00	50
Class 7—Best quart dried currants.....	1 00	50
Class 8—Best quart dried raspberries.....	1 00	50
Class 9—Best quart dried blackberries.....	1 00	50
Class 10—Best quart dried quinces.....	1 00	50
Class 11—Best quart dried strawberries.....	1 00	50
Class 12—Best quart dried whortleberries.....	1 00	50
Class 13—Best quart dried elderberries.....	1 00	50
Class 14—Best sample dried pumpkin.....	1 00	50
Class 15—Best sample dried citron.....	1 00	50
Class 16—Best collection of pickled fruit.....	2 00	1 00
Class 17—Best sample pickled pears.....	1 00	50
Class 18—Best sample pickled peaches.....	1 00	50
Class 19—Best sample pickled apples.....	1 00	50
Class 20—Best sample pickled cherries.....	1 00	50
Class 21—Best display of pickled vegetables.....	2 00	1 00
Class 22—Best sample of catsup.....	1 00	50
Class 23—Best sample of pickled tomatoes.....	1 00	50
Class 24—Best sample of pickled cucumbers.....	1 00	50
Class 25—Best sample of pickadilly.....	1 00	50
Class 26—Best sample of pickled beans.....	1 00	50

DIVISION K—CANNED FRUITS.

Committee—Mrs. S. L. Withey, Grand Rapids; Mrs. J. Heald, Whitehall; Mrs. J. Davies, Muskegon; Mrs. Hunter Savidge, Spring Lake; Jacob Quintus, Grand Rapids.

	1st.	2d.
Class 1—Best collection of canned fruits.....	\$2 00	\$1 00
Class 2—Best sample canned apples.....	1 00	50
Class 3—Best sample canned pears.....	1 00	50
Class 4—Best sample canned pared peaches.....	1 00	50
Class 5—Best sample canned whole peaches.....	1 00	50
Class 6—Best sample canned plums.....	1 00	50
Class 7—Best sample canned cherries.....	1 00	50
Class 8—Best sample canned Siberian apples.....	1 00	50
Class 9—Best sample canned strawberries.....	1 00	50
Class 10—Best sample canned raspberries.....	1 00	50
Class 11—Best sample canned blackberries.....	1 00	50
Class 12—Best sample canned whortleberries.....	1 00	50
Class 13—Best sample canned quinces.....	1 00	50
Class 14—Best sample canned gooseberries.....	1 00	50
Class 15—Best sample canned currants.....	1 00	50
Class 16—Best sample canned pie-plant.....	1 00	50
Class 17—Best sample canned grapes.....	1 00	50
Class 18—Best sample canned tomatoes.....	1 00	50
Class 19—Best sample canned corn.....	1 00	50
Class 20—Best sample canned peas.....	1 00	50
Class 21—Best sample canned pumpkin.....	1 00	50
Class 22—Best sample canned asparagus.....	1 00	50

DIVISION L—PRESERVED FRUITS AND JELLIES.

Committee—T. H. Lyon, Jr., Grand Rapids; Mrs. Chas. Hempel, Grand Rapids; Miss Millie Peck, Muskegon; Mrs. H. G. Holt, Cascade; Miss Sarah Cook, Marshall.

	1st.	2d.
Class 1—Best collection of preserved fruits.....	\$2 00	\$1 00
Class 2—Best sample cider apple sauce.....	1 00	50
Class 3—Best sample preserved pears.....	1 00	50
Class 4—Best sample preserved peaches.....	1 00	50
Class 5—Best sample preserved plums.....	1 00	50
Class 6—Best sample preserved cherries.....	1 00	50
Class 7—Best sample preserved strawberries.....	1 00	50
Class 8—Best sample preserved raspberries.....	1 00	50
Class 9—Best sample preserved blackberries.....	1 00	50
Class 10—Best sample preserved whortleberries.....	1 00	50
Class 11—Best sample preserved quinces.....	1 00	50
Class 12—Best sample preserved currants.....	1 00	50
Class 13—Best sample preserved gooseberries.....	1 00	50
Class 14—Best sample preserved grapes.....	1 00	50
Class 15—Best sample preserved crab apples.....	1 00	50
Class 16—Best sample preserved tomatoes.....	1 00	50
Class 17—Best sample preserved citron.....	1 00	50
Class 18—Best collection of jellies.....	1 00	50
Class 19—Best specimen of currant jelly.....	1 00	50
Class 20—Best specimen of apple jelly.....	1 00	50

	1st.	2d.
Class 21—Best specimen of Siberian crab jelly.....	\$1 00	\$0 50
Class 22—Best specimen grape jelly.....	1 00	50
Class 23—Best specimen raspberry jelly.....	1 00	50
Class 24—Best specimen blackberry jelly.....	1 00	50
Class 25—Best specimen of any other variety.....	1 00	50
Class 26—Best sample quince jelly.....	1 00	50
Class 27—Best sample tomato jelly.....	1 00	50
Class 28—Best sample apple butter.....	1 00	50

DIVISION M—WINES, CIDER, VINEGAR, CORDIALS, ETC.

Committee—E. P. Fuller, Grand Rapids; Dr. Chas. A. Hempel, Grand Rapids; Dr. Wooster, Muskegon; Elias Pardee, Dowagiac; Charles Gay, Big Rapids.

	1st.	2d.
Class 1—Best collection of foreign wines.....	\$2 00	\$1 00
Class 2—Best collection of domestic wines.....	2 00	1 00
Class 3—Best sample currant wine.....	1 00	50
Class 4—Best sample blackberry wine.....	1 00	50
Class 5—Best sample grape wine.....	1 00	50
Class 6—Best sample Clinton wine.....	1 00	50
Class 7—Best sample Concord wine.....	1 00	50
Class 8—Best sample Ives' Seedling wine.....	1 00	50
Class 9—Best sample Delaware wine.....	1 00	50
Class 10—Best sample Isabella wine.....	1 00	50
Class 11—Best sample Catawba wine.....	1 00	50
Class 12—Best sample wild grape wine.....	1 00	50
Class 13—Best sample native grape wine, any other variety.....	1 00	50
Class 14—Best sample elderberry wine.....	1 00	50
Class 15—Best sample raspberry wine.....	1 00	50
Class 16—Best sample strawberry wine.....	1 00	50
Class 17—Best sample cherry wine.....	1 00	50
Class 18—Best sample rhubarb wine.....	1 00	50
Class 19—Best gallon cider.....	1 00	50
Class 20—Best specimen bottled cider, not less than six bottles.....	1 00	50
Class 21—Best gallon boiled cider.....	1 00	50
Class 22—Best gallon cider vinegar.....	1 00	50

DIVISION N—NURSERY STOCK.

Committee—James Hamilton, Big Rapids; George Seagrove, Spring Lake; E. U. Knapp, Grand Rapids; Fred Russell, Hart, Oceana county; Henry Holt, Cascade.

	1st.	2d.
Class 1—Best ten apple trees, 3 years old, not less than 5 varieties....	\$3 00	\$2 00
Class 2—Best ten apple trees, 2 years old, not less than 5 varieties....	3 00	2 00
Class 3—Best six budded peach trees, 1 year old.....	3 00	2 00
Class 4—Best six dwarf pear trees, 2 years old.....	3 00	2 00
Class 5—Best six standard pears, 2 years old.....	3 00	2 00
Class 6—Best six cherry trees, 2 years old, Dukes, Morellos.....	3 00	3 00
Class 7—Best six cherry trees, 2 years old, Bigarreau.....	3 00	2 00
Class 8—Best ten Concord grape vines.....	3 00	2 00
Class 9—Best ten Delaware grape vines.....	3 00	2 00

DIVISION O—FLOWERS—CONSERVATORY AND PARLOR PLANTS.

(To be shown in pots.)

Committee—Dr. C. P. Priadle, Dowagiac; Mrs. Jas. Nelson, Grand Rapids; Mrs. Frank Beach, Marshall; Mrs. J. M. Dudley, Spring Lake; Miss Anna Wilson, Montague.

	1st.	2d.
Class 1—For the finest collection of conservatory and parlor plants, not less than 20 varieties.....	\$5 00	\$3 00
Class 2—Best collection of Abutilons, not less than three varieties....	2 00	
Class 3—Finest single Abutilon.....	1 00	
Class 4—Best collection of Zonale Geraniums, not less than five kinds.....	1 00	
Class 5—Best single Zonale Geranium.....	50	
Class 6—Finest collection of double-flowering Geraniums, not less than three kinds.....	1 00	
Class 7—Best double Geranium.....	50	
Class 8—Best and largest collection of scented Geraniums, not less than four varieties.....	1 00	
Class 9—Finest single scented Geranium.....	50	
Class 10—Finest collection of gold, silver, and bronze leaved Gerani- ums, not less than five kinds.....	1 00	
Class 11—Best single variegated leaved Geranium.....	50	
Class 12—Best collection of ivy-leaved Geraniums, four or more vari- eties.....	1 00	
Class 13—Best single ivy Geranium.....	50	
Class 14—Best collection of Pelargonium Geraniums, of five kinds....	1 00	
Class 15—Best single Pelargonium.....	50	
Class 16—Largest and best collection of Geraniums of all kinds.....	2 00	1 00
Class 17—Best collection of Fuschias, of six or more varieties.....	1 00	
Class 18—Best single Fuschia.....	50	
Class 19—Best double Fuschia.....	50	
Class 20—Best collection of monthly roses, of five kinds or more.....	1 00	
Class 21—Best monthly rose.....	50	
Class 22—Best Oleander.....	50	
Class 23—Best Calla.....	50	
Class 24—Best collection of Begonias, not less than five kinds.....	1 00	
Class 25—Best single Begonia.....	50	
Class 26—Best collection of winter blooming plants, six or more vari- eties.....	1 00	
Class 27—Best collection of ornamental foliage plants.....	1 00	
Class 28—Best single ornamental foliage plant.....	50	
Class 29—Best collection parlor climbers, three or more kinds.....	1 00	
Class 30—Best parlor climber.....	50	
Class 31—Best collection of Cacti, four or more kinds.....	1 00	
Class 32—Best single Cactus.....	50	
Class 33—Best collection of Ferns.....	1 00	
Class 34—Best single Fern.....	50	
Class 35—Best collection of Mosses.....	1 00	
Class 36—Best Orange tree.....	1 00	
Class 37—Best Lemon tree.....	1 00	
Class 38—Best collection of basket plants.....	1 00	

	1st.
Class 39—Best hanging basket, filled.....	\$0 50
Class 40—Best Wardian case, filled.....	1 00
Class 41—Best collection of parlor plants, not enumerated in the preceding classes.....	1 00
Class 42—Best parlor plant, other than the preceding classes.....	50

DIVISION P—BEDDING PLANTS, NOT HARDY.

(To be shown in pots, or by cut flowers.)

Committee—D. D. Hughes, Marshall; Mrs. James Lyman, Grand Rapids; Mrs. S. H. Wagner, Muskegon; Mrs. Clarence Wilbur, Three Rivers; Mrs. P. K. Leach, Utica.

Class 1—Best collection of bedding plants, not less than 12 varieties.....	\$8 00
Second best ditto	2 00
Class 2—Best collection of Verbenas, of ten or more varieties.....	1 00
Class 3—Best collection Heliotropes, five or more varieties.....	1 00
Class 4—Best collection of Lantanas, of five or more kinds.....	1 00
Class 5—Best collection of Pansies, of five or more varieties.....	1 00
Class 6—Best collection of Argeratum, of three or more kinds.....	1 00
Class 7—Best collection of Antirrhinums, five or more kinds.....	1 00
Class 8—Best collection of Petunias, single or double	1 00
Class 9—Best collection of Mimulus, of three or more kinds.....	1 00
Class 10—Best collection of Carnation Pinks, of three or more sorts.....	1 00
Class 11—Best collection Tropæolums, not less than five kinds.....	1 00
Class 12—Best collection ornamental foliage plants, for bedding.....	2 00
Class 13—Best collection of Coleus, of five or more kinds.....	1 00
Class 14—Best collection of Achryanthus, of three or more kinds.....	1 00
Class 15—For the finest Pyrethrum.....	50
Class 16—For the finest Verbena.....	50
Class 17—For the finest seedling Verbena of 1871.....	50
Class 18—For the finest Pansy.....	50
Class 19—For the finest Heliotrope.....	50
Class 20—For the finest Lantana.....	50
Class 21—For the finest Antirrhinum.....	50
Class 22—For the finest single Petunia.....	50
Class 23—For the finest double Petunia.....	50
Class 24—For the finest Coleus.....	50
Class 25—For the finest Achryanthus.....	50
Class 26—For the finest Centaurea.....	50
Class 27—For the finest Cuphea.....	50
Class 28—For the finest Salvia.....	50
Class 29—For the finest Aloysia (Lemon Verbena).....	50
Class 30—For the finest Mimulus.....	50
Class 31—For the finest Carnation Pink.....	50
Class 32—For the finest Argeratum	50

DIVISION R—SHRUBBERY, HERBACEOUS PLANTS, AND ANNUALS, HARDY.

(Shown by plants in pots, or by cut flowers.)

Committee—Dr. J. H. Montgomery, Marshall; Mrs. Dr. Mizner, Whitehall; Mrs. W. A. Howard, Grand Rapids; Mrs. W. Robinson, Fruitport; Mrs. R. P. Eastman, Muskegon.

Class 1—Largest and best collection of flowers of shrubs, herbaceous plants, and annuals.....	\$3 00
Second best collection of flowers of shrubs, herbaceous plants and annuals.....	2 00
Class 2—Finest collection of Altheas.....	1 00
Class 3—Best Hybrid Perpetual Roses.....	1 00
Class 4—Best Hybrid single Rose.....	50
Class 5—Best collection of Perrenial Phlox of five sorts.....	1 00
Class 6—Best Perrenial Phlox.....	50
Class 7—Best Seedling Phlox.....	50
Class 8—Best collection Japan Pinks of five or more varieties.....	1 00
Class 9—Best Pink.....	50
Class 10—Largest and best collection of annuals, of seven or more kinds....	2 00
Class 11—Best collection of Phlox Drummondi, of eight or more varieties...	1 00
Class 12—Best single variety of Phlox Drummondi.....	50
Class 13—Best collection of Asters, of eight or more varieties.....	1 00
Class 14—Best Asters of any kind.....	50
Class 15—Best collection of Ten-Week Stock, five or more kinds.....	1 00
Class 16—Best single stock.....	50
Class 17—Best collection of Zinnias.....	1 00
Class 18—Best single Zinnia.....	50
Class 19—Best collection of Coxcombs of not less than six kinds.....	1 00
Class 20—Best single Coxcomb.....	50
Class 21—Best collection of Delphinium or Larkspurs.....	50
Class 22—Best collection of Mignonette.....	1 00
Class 23—Best collection of everlasting flowers of five or more kinds.....	1 00
Class 24—Best collection of any species of everlasting flowers.....	50
Class 25—Best collection of ornamental grasses of three kinds.....	50
Class 26—Best collection of native or wild flowers, appropriately classified, not less than eight kinds.....	1 00

DIVISION 8—BULBOUS, ETC., PLANTS AND BULBS.

(Shown by plants in pots, or cut flowers.)

Committee—S. H. White, Ludington; Mrs. Wm. S. Gunn, Grand Rapids; Mrs. J. Q. Frink, Marshal; Mrs. J. C. Clark, Dowagiac; Mrs. Geo. Arms, Muskegon.

Class 1—Largest and best collection of flowers in this Division, of not less than eight kinds.....	\$3 00
Second best.....	2 00
Class 2—Largest and best of Dahlias, not less than ten kinds.....	2 00
Class 3—Best twelve dissimilar Dahlia blooms.....	1 00
Class 4—Best Dahlia.....	50
Class 5—Best seedling Dahlia of '70-71.....	50
Class 6—Best prepared bouquet of Dahlias.....	50
Class 7—Best of Gladioli of six or more varieties.....	1 00
Class 8—Best single Gladiolus.....	50
Class 9—Best three Cannas of five or more varieties.....	1 00
Class 10—Best Canna.....	50
Class 11—Best three Tritomas.....	1 00
Class 12—Best Tritomi cluster.....	50
Class 13—Best Maderia, vine in pot.....	50
Class 14—Best three Calladiums.....	1 00
Class 15—Best Calladium.....	50

Class 16—Best of Lilies.....	\$1 00
Class 17—Best Lily of any kind.....	50
Class 18—Best show of Tuberoses.....	1 00
Class 19—Best of any other family of bulbous plants.....	1 00
Class 20—Best plant of any other family.....	50
Class 21—Best of Hyacinth bulbs grown by the exhibitor.....	1 00
Class 22—Best of Tulip bulbs, of five or more kinds.....	1 00
Class 23—Best of Crocus bulbs.....	50

DIVISION T.—BOUQUETS, FLORAL ORNAMENTS, ETC.

Committee—I. Ransom Sandford, Muskegon; Miss Maggie Barr, Marshall; Mrs. Ellen Comstock, Grand Rapids; Mrs. D. Erwin, Muskegon; Mrs. D. M. Benjamin, Big Rapids.

Class 1—Largest and best display of cut flowers by one exhibitor.....	\$2 00
Second best.....	1 00
Class 2—Best floral mound or pyramid.....	1 00
Class 3—Best floral wreath.....	1 00
Class 4—Best basket of flowers.....	1 00
Class 5—Best other floral design.....	1 00
Class 6—Best round bouquet.....	1 00
Class 7—Best flat bouquet.....	1 00
Class 8—Best display of bouquets by one exhibitor.....	2 00
Class 9—Best bouquet of native or wild flowers.....	1 00
Class 10—Best bouquet of dried or everlasting flowers skillfully arranged....	1 00
Class 11—Best basket everlasting flowers skillfully arranged.....	1 00
Class 12—Best aquarium with fish and plants.....	1 00
Class 13—Best vase or globe with gold fish.....	1 00
Class 14—Best cage of canary birds.....	2 00
Class 15—Best canary bird.....	1 00
Class 16—Best bird of any other variety.....	1 00

DIVISION U.—FRUIT AND FLOWER ILLUSTRATIONS.

Committee—Peter R. L. Pierce, Grand Rapids; Mrs. Luther Moulton, Muskegon; Mrs. Dr. Prindle, Dowagiac; Mrs. E. H. Whitney, Lansing; W. W. Owen, Lowell.

	1st.	2d.
Class 1—Best fruit piece in oil.....	\$2 00	\$1 00
Class 2—Best flower piece in oil.....	2 00	1 00
Class 3—Best fruit piece in water colors.....	2 00	1 00
Class 4—Best flower piece in water colors.....	2 00	1 00
Class 5—Best flower chromo.....	2 00	1 00
Class 6—Best fruit chromo.....	2 00	1 00
Class 7—Best show of fruit and floral paintings.....	3 00	2 00
Class 8—Best paintings and illustrations of single fruits.....	2 00	1 00
Class 9—Best drawing of a flower garden.....	2 00	1 00
Class 10—Best album or bound volume of fruit and flower illustrations.....	2 00	1 00

REPORT OF PREMIUMS AWARDED BY THE STATE POMOLOGICAL SOCIETY, AT THE UNION FAIR.

DIVISION A—ORCHARDS AND GARDENS.

PLYMOUTH, November 22, 1871.

HON. J. P. THOMPSON, *President Michigan State Pomological Society* :

DEAR SIR:—The undersigned, committee on orchards and gardens, respectfully submit the following report :

With the large number of classes with entries submitted to their examination, scattered over the entire State, so much time was required for the examinations that it was found impossible to keep the committee together for that purpose. This proved so serious a difficulty that an assignment of a portion of the work to sub-committees was found indispensable.

This was found to be especially necessary with the entries for the premiums offered by N. P. Husted of Lowell, which were found to be scattered over a territory somewhat difficult of access ; hence, as we are informed, the board have relieved us of these cases, by placing them in charge of another committee.

A large number of the entries, particularly of peaches and grapes, were found to be in the vicinity of Spring Lake and Fruitport, upon lands but newly cleared, and we can hardly speak too highly of the thoroughness and energy of those who have, mainly within the last three or four years, reduced these lands from a state of nature to their present admirable state of cultivation. Indeed, with very rare exceptions, the culture seems to be of the most thorough and satisfactory character.

The crops of most varieties of fruits were quite satisfactory, if we consider the age of the plantations ; indeed, the crop

of grapes must be considered excessive, so much so as to endanger the ability of the plants to sustain future crops, unless the capacity of the soil shall prove decidedly greater than its appearance would indicate.

Your committee take pleasure in excepting from these remarks the vineyard of Mr. David Robertson, of Grand Rapids, who, by means of a thorough system of summer pruning, is enabled to produce results of a highly satisfactory character, especially so far as the size of both berry and bunch are concerned. This, to be sure, is done at the expense of quantity; but it is believed by your committee that such deficiency will be found to be more than compensated, even in the pecuniary results, by the improved size and quality of the crop, to say nothing of the vigor of the plants thus husbanded for the benefit of succeeding crops. Your committee, however, take occasion to remark upon the possibility, not to say danger, of carrying this process of summer pruning to such an excess as to compromise the ultimate vigor and health of the plants,—a remark ventured the more freely since vineyardists of experience and standing seem to be arriving at the conclusion that our rampant American varieties do not bear the close cutting so perfectly adapted to the habit of the European sorts.

Your committee were also highly gratified with the condition in which the peach orchards entered for competition were generally found. In a few cases, a purpose was manifest to keep the heads well up for the purpose of facilitating culture with the plow,—a mistake which, we apprehend, no planter will be likely to repeat after experience with one plantation.

With the large number of entries of plantations of the grape and peach, widely separated from each other in many cases, and often on widely different soils, your committee have found it difficult to discriminate with certainty between cases often almost equally meritorious, and they deeply regret their inability, under the rules of the society, to award premiums in many cases that command their unqualified admiration.

In the pear orchards entered there are also several very close competitors, and in their awards the committee are influenced to a considerable extent by the adaptation of the varieties selected and planted, to the market, also to some extent by the system of pruning.

Your committee have made the following awards, viz :

- Class 1—Best and second best apple orchard, not less than two acres, in full bearing.
This matter was referred to Mr. H. S. Clubb of Grand Haven, who, as a sub-committee, it was agreed should examine entries and report, but who unfortunately has not been heard from.
- Class 2—Best apple orchard, planted not over five years. To Hunter Savidge, of Spring Lake.
- Class 3—Best apple orchard, planted not over two years. No entry.
- Class 4—Best pear orchard, not less than one-quarter acre, in full bearing. To J. W. Humphrey, Plymouth.
Second best pear orchard, not less than one-quarter acre, in full bearing.
To C. Engle, Paw Paw.
- Class 5—Best young pear orchard, planted not more than five years. To C. Engle, Paw Paw.
- Class 6—Best peach orchard, not less than one acre, in bearing. To Lyman Hall, Fruitport.
- Class 7—Best young peach orchard, planted not over five years. To W. B. Mason, Fruitport.
- Class 8—Best young peach orchard, not less than ten acres, and not planted more than two years. To A. L. Soule, Fruitport.
- Class 9—Best plum orchard. To N. P. Husted, Lowell.
- Class 10—Best cherry orchard. To A. L. Soule, Fruitport.
- Class 11—Best quince orchard, not less than one-eighth of an acre, in bearing. To C. Engle, Paw Paw.
- Class 12—Best vineyard, in bearing, not less than one acre. To Thomas Petty, Fruitport.
Second best ditto. To George Hosford, Ionia.
- Class 13—Best young vineyard, not over three years planted, nor less than one acre.
To M. P. Smith, Hopkins, Allegan county.
- Class 14—Best Delaware vineyard. To David Robertson, Grand Rapids.
- Class 15—Best Concord vineyard. To Thomas Petty, Fruitport.
- Class 16—Best small-fruit garden, including strawberries, blackberries, raspberries, and currants. No entry.
- Class 17—Best plat strawberries, not less than one acre. To C. S. Shepherd, Muskegon.
- Class 18—Best plat of raspberries, not less than one-half acre. To Geo. S. Linderman, Grand Rapids.
- Class 19—Best plat of blackberries, not less than one-half acre. To Geo. S. Linderman, Grand Rapids.
- Class 20—Best plat of currants, not less than one-half acre. No entry.
- Class 21—Best plat of gooseberries, not less than one-half acre. No entry.
- Class 22—Best suburban ornamental grounds. No entry.
- Class 23—Best ornamental grounds, belonging to a farm residence. To Benjamin Hatheway, Little Prairie Ronde.

Class 24—Best cultivated and ornamental city lot. No entry.

Class 25—Best and most tastefully arranged flower garden. To C. L. Whitney, Muskegon.

Class 26—Best general nursery. To Reynolds, Lewis & Co., Monroe.

Class 27—Best private conservatory. To Mrs. E. T. Nelson, Grand Rapids.

Class 28—Best general greenhouse. To John Suttle, Grand Rapids.

The observations of your committee would seem to indicate that generally there is a disposition among planters to confine their operations to only a portion of the circle of fruits; and this seems to be especially the case with planters for commercial purposes. This being the case, your committee may be indulged in a recommendation, that in view of the large number of classes covered by these entries, and the fact that in reaching them by rail when isolated as they usually are, seldom more than one entry can be examined each day, they be subdivided, and assigned to two, three or more committees, each composed of experts in such classes as shall be assigned to them.

A natural subdivision would seem to be: 1st, classes 1 to 5, including apple and pear orchards; 2d, classes 6 to 15, including peach, plum, cherry, quince, and grape; 3d, classes 16 to 21, including berries in all their varieties; and 4th, classes 22 to 28, including the entire ornamental interest.

We greatly regret that this report could not have been laid before you at an earlier period, but inability to secure a portion of the requisite facts has compelled the delay.

All of which is respectfully submitted.

T. T. LYON,
A. T. LINDERMAN,
HENRY HOLT,
Committee.

DIVISION B—COLLECTIONS OF FRUIT.

Committee—S. L. Fuller, Fletcher Fowler, H. Gaylord Holt, T. J. Ramsdell.

Class 1—State collection.

Class 2—County collections:

Wayne county, first premium, \$100.

Kent county, second premium, \$50.

Clinton county, third premium, \$25.

Eaton county, fourth premium, \$15.

Class 3—Township collection :

Spring Lake, first premium, \$50. (Donated to the society by Messrs. Savidge, Hall, Soule, and others.)

Grattan, second premium, \$25.

Grand Rapids, third premium, \$15.

Ovid, fourth premium, \$10.

Hart, fifth premium, \$5.

Class 4—For the best collection of the varieties recommended by the Michigan State Pomological Society for general cultivation, * \$10 and \$5. Joseph Gridley, Kalamazoo, first premium, \$10; L. S. Dickinson, Grand Rapids, second premium, \$5.

Class 5—Best collection of fruits, grown by exhibitor. N. P. Husted, Lowell, first premium, \$20.

Class 6—Best collection of fruit exhibited by any individual. N. P. Husted, Lowell, first premium, \$20.†

SPECIAL PREMIUMS AWARDED.

To collection from South Haven Pomological Society of \$10. Exhibited by T. S. Linderman and Jno. Bidwell of South Haven.

To collection from the Agricultural and Pomological Society at Douglass, Allegan county, of \$10. Exhibited by E. W. Ferry of Douglass.

DIVISION C—APPLES.

Committee—J. G. Ramsdell, G. W. Dickinson, George Taylor, H. E. Light, Myron H. Norton.

Class 1—Best peck any one variety summer apples. Henry Allen, Paris, first premium, \$2; variety—Bacon's Best.

Class 2—Best peck any one variety autumn apples. Henry Allen, Paris, first premium, \$2; variety—Fall Janetting. Charles Alford, Lamont, second premium, \$1; variety—Goodenough.

Class 3—Best peck any one variety winter apples. Norman Cummins, Englishville, first premium, \$2; variety—Wagener. Chas. Alford, Lamont, second premium, \$1; King of Tompkins County.

Class 4—Best single variety summer apples. Chas. Alford, first premium, \$1; Sweet Bough. Henry Holt, Cascade, second premium, 50 cents; Sweet Bough.

Class 5—Best single variety autumn apples. H. Allen, Paris, first premium, \$1; variety—Fall Janetting. Henry Holt, Cascade, second premium, 50 cents; variety—Gravenstein.

Class 6—Best single variety winter apples. N. P. Husted, Lowell, first premium, \$1; variety—Wagener. Henry Holt, Cascade, second premium, 50 cents; variety—Peck's Pleasant.

* NOTE.—The varieties recommended by this society, referred to above, include the following: For summer use—The Red Astrachan, Sweet Bough, and Duchess of Oldenburg. For autumn use—Fall Pippin, Cayuga County Redstreak, Snow, Jersey Sweet, Maiden's Blush. For winter use—Baldwin, Wagener, Golden Russet, Rhode Island Greening, Tallman Sweet, Hubbardston Nonsuch, Northern Spy. Exhibitors to obtain the above premiums must exhibit at least twelve of the above varieties.

† NOTE.—This premium is offered in order that any person desiring to exhibit a fine collection of fruits, procured from any and all sources, may have the opportunity. But in all other cases it is to be strictly insisted upon that the exhibition from any State, county, township, or individual shall be the production of the State, county, township, or individual exhibiting the same.

- Class 7—Best peck Sweet Bough. Chas. Alford, first premium, \$1. H. Allen, second premium, 50 cents.
- Class 10—Best peck Fall Pippin. Wm. Rowe, Walker, first premium, \$1.
- Class 11—Best peck Cayuga County Red Streak. G. I. Moore, Walker, first premium, \$1. C. S. Randall, Lamont, second premium, 50 cents.
- Class 12—Best peck Maiden's Blush. H. Allen, Paris, first premium, \$1. Chas. Alford, Lamont, second premium, 50 cents.
- Class 13—Best peck Snow apples. O. Van Buren, Grand Rapids city, first premium, \$1. S. M. Pearsoll, Alpine, second premium, 50 cents.
- Class 14—Best peck Jersey Sweet. Chas. Alford, Lamont, first premium, \$1. R. C. Sessions, Gaines, second premium, 50 cents.
- Class 15—Best peck Wagener. N. Cummins, Englishville, first premium, \$1. Asa W. Slayton, Grattan, second premium, 50 cents.
- Class 16—Best peck Baldwins. J. H. Ford, Paris, first premium. G. I. Moore, Walker, second premium.
- Class 17—Best peck Rhode Island Greenings. R. C. Sessions, Gaines, first premium. S. M. Pearsoll, Alpine, second premium.
- Class 18—Best peck Northern Spy. R. C. Sessions, Gaines, first premium. Asa W. Slayton, Grattan, second premium.
- Class 19—Best peck Golden Russet. J. H. Ford, Paris, first premium. M. Norton, city, second premium.
- Class 21—Best peck Tallman Sweet. C. S. Randall, Lamont, first premium.
- Class 24—Best peck Golden Sweet. Chas. Alford, Lamont, first premium.
- Class 34—Best peck Autumn Strawberry. S. M. Pearsoll, Alpine, first premium.
- Class 35—Best peck Fall Orange. Henry Allen, Paris, first premium. S. M. Pearsoll, Alpine, second premium.
- Class 36—Best peck Rambo. O. Van Buren, city, first premium.
- Class 37—Best peck Autumn Swaar. H. Allen, Paris, first premium.
- Class 39—Best peck Steele's Red Winter. G. I. Moore, Walker, first premium.
- Class 40—Best peck Swaar. Chas. Alford, Lamont, first premium.
- Class 41—Best peck Jonathan. G. I. Moore, Walker, first premium.
- Class 42—Best peck Esopus Spitzenburg. S. M. Pearsoll, Alpine, first premium. Wm. Rowe, Walker, second premium.
- Class 43—Best peck King of Tompkins County. Chas. Alford, Lamont, first premium. G. I. Moore, Walker, second premium.
- Class 45—Best peck Peck's Pleasant. J. H. Ford, Paris, first premium.
- Class 47—Best peck Fallwater. C. J. Deitrich, Grand Rapids, first premium.
- Class 48—Best peck Rawles' Janet. Wm. Rowe, Walker, first premium.
- Class 51—Best peck Willow Twig. Wm. Rowe, Walker, first premium.
- Class 52—Best peck Yellow Bellflower. Wm. Rowe, first premium.
- Class 53—Best peck any other variety. Wm. Rowe, Walker; variety—Twenty Ounce.
- Class 56—Best collection of apples, grown by exhibitor. Chas. Alford, Lamont, first premium, \$10. Henry Allen, Paris, second premium, \$5.
- Class 57—Best collection of Siberian Crab apples. N. P. Husted, Lowell, first premium.
- Class 58—Best single variety Siberian Crab, not less than 20 specimens. N. P. Husted, Lowell, first premium.
- Class 59—Best 20 specimens Transcendent Crab. N. P. Husted, Lowell, first premium.
- Class 60—Best 20 specimens large Red Crab. N. P. Husted, Lowell, first premium.
- Class 61—Best 20 specimens Montreal Beauty. N. P. Husted, first premium.
- Class 62—Best 20 specimens Hyslop. N. P. Husted, first premium.

REMARKS BY COMMITTEE.—Many of the numbers could not be found by the committee. The different classes in this division were mingled together in such crowded space that we found it very difficult to separate and compare them. To avoid this, the committee would recommend that in the future the classes be kept separate, as well as the divisions.

DIVISION D—PEARS.

- Committee—Louis S. Lovell, C. Davis, Darius Boynton, H. E. Light, J. M. Smith.
- Class 1—Best collection pears. Sanford Snow, Muskegon, first premium, \$2.
- Class 6—Best single variety autumn pears. H. Holt, Cascade, first premium, \$1.
- Variety—Beurre Diez.
- Wm. Rowe, Walker, second premium, 50 cents.
- Class 7—Best single variety winter pears. J. D. Alger, Paris, first premium, \$1.
- Wm. Rowe, Walker, second premium, 50 cents.
- Class 8—Best plate Bartletts. J. G. Ramsdell, Manistee, first premium; donated.
- H. Holt, Cascade, second premium.
- Class 9—Best plate Flemish Beauty. Jno. Gilbert, Ovid, first premium. H. Holt, Cascade, second premium.
- Class 10—Best plate Louise Bonne de Jersey. John Gilbert, Ovid, first premium. J. D. Alger, Paris, second premium.
- Class 12—Best plate Duchess d' Angouleme. A. L. Soule, Spring Lake, first premium.
- Class 13—Best plate Seekel. Jno. Gilbert, Ovid, first premium. Henry Allen, Paris, second premium.
- Class 14—Best plate Vicar. H. Holt, Cascade, first premium. Henry Allen, Paris, second premium.
- Class 16—Best plate Sheldon. J. H. Ford, Paris, first premium.

REMARKS BY COMMITTEE.—The committee would state that a number of entries are not found; that the collection of Messrs. Sanford and Snow is very choice, each variety being perfect; that Mr. Boynton of Benton Harbor—one of the committee,—has upon exhibition some eight or ten varieties of pears, which are very fine and deserving a favorable notice.

DIVISION E—PEACHES.

- Committee—S. B. Peck, J. S. Linderman, Asa W. Slayton, Geo. Seagrove, A. O. Winchester.
- Class 5—Best dish single variety. A. L. Soule, Spring Lake, first premium, \$1.
- Variety—Early Crawford. W. B. Mason, Spring Lake, second premium, 50 cents. Variety—Early Crawford.
- Class 6—Best plate Early Crawford. W. B. Mason, Spring Lake, first premium. A. L. Soule, Spring Lake, second premium.
- Class 7—Best plate Barnard. W. B. Mason, Spring Lake, first premium. E. Graham, Walker, second premium.
- Class 8—Best plate Smock Free. A. L. Soule, Spring Lake, first premium.
- Class 9—Best plate Late Crawford. N. Fisk, Grand Rapids township, first premium.

- Class 11—Best plate Hill's Chli. Joseph Chapel, Eastmanville, first premium.
 Class 16—Best plate George IV. E. Graham, Walker, first premium.
 Class 17—Best plate any other variety. Joseph Chapel, Eastmanville, first premium;
 variety—Old Mixon Free. Joseph Chapel, Eastmanville, second premium;
 variety—Princess Rareripe.

DIVISION F—GRAPES.

Committee—Ed. Bradfield, J. G. Ramsdell, William Haldane.

- Class 1—Best collection native grapes, not less than four varieties. Benj. Hatheway, Little Prairie Ronde, first premium, \$10. W. Slocum, Grand Rapids city, second premium, \$6.
 Class 2—Best ten pounds native varieties. Hunter Savidge, Spring Lake, first premium, \$1.
 Class 3—Best five pounds Concord. Hunter Savidge, Spring Lake, first premium, \$1. George Hosford, Ionia, second premium, 50 cents.
 Class 4—Best five pounds Clinton. W. I. Blakely, Grand Rapids city, first premium, \$1. Chas. Alford, Lamont, second premium, 50 cents.
 Class 5—Best five pounds Isabella. Hunter Savidge, Spring Lake, first premium, \$1.
 Class 6—Best five pounds Delaware. Hunter Savidge, Spring Lake, first premium, \$1. Joseph Chapel, Eastmanville, second premium, 50 cents.
 Class 7—Best five pounds Iona. Thos. Archer, St. Joseph, first premium, \$1. Jos Chapel, Eastmanville, second premium, 50 cents.
 Class 8—Best five pounds of Diana. W. I. Blakely, Grand Rapids city, first premium, \$1.
 Class 9—Best five pounds Ives' Seedling. Hunter Savidge, Spring Lake, first premium, \$1.
 Class 10—Best five pounds Hartford Prolific. Hunter Savidge, Spring Lake, first premium, \$1. Joseph Chapel, Eastmanville, second premium, 50 cents.
 Class 14—Best five pounds Catawba. W. I. Blakely, Grand Rapids city, first premium, \$1. Hunter Savidge, Spring Lake, second premium, 50 cents.
 Class 18—Best six clusters Rogers' Hybrids. Hunter Savidge, Spring Lake, first premium, \$1; variety—No. 15. Joseph Chapel, Eastmanville, second premium, 50 cents; variety—No. 4.
 Class 19—Best plate any variety not mentioned above. Joseph Chapel, Eastmanville, first premium, \$1; variety—Union Village. Joseph Chapel, Eastmanville, second premium, 50 cents; variety—Rebecca.
 Class 20—Greatest number varieties of native grapes grown by exhibitor. Benjamin Hatheway, Little Prairie Ronde, first premium, \$5. Hunter Savidge, Spring Lake, second premium.

REMARKS BY COMMITTEE.—We would respectfully urge the granting of a special second premium for very fine collection of twenty-eight varieties (from Hunter Savidge), of a very good quality, and well deserving notice; also, a special premium for a very fine plate of grapes named Kalamazoo, exhibited by Erasmus Davis, which was so classed we could not award a premium; also, a special premium for a raisin grape, exhibited by a Mr. Smith of Detroit. We would also notice

two very fine collections of hot-house grapes, grown by Mrs. Morris and George Kendall of Grand Rapids city. Several parties entered varieties for best collection of native grape (among whom was W. Slocum, city), supposing they could compete for best five-pound premiums, to which they would have been entitled but for this mistake in entering. We cannot conclude without noticing the most attractive specimens of all,—the justly celebrated California grapes, which eclipsed everything else by far; and we hope to be able to return the compliment at some future time to the State of California.*

E. BRADFIELD,
J. G. RAMSDELL,
WM. HALDANE,
Committee.

DIVISION G—PLUMS, APRICOTS, AND NECTARINES.

Yellow Egg—First premium, N. P. Husted, Lowell, Kent county.

Lombard—First premium, Sanford & Snow, Muskegon. Second premium, T. J. Ramsdell, Manistee.

Single variety plums—First premium, N. P. Husted; variety—Canada Egg. Second premium, J. G. Ramsdell, Manistee; variety—Duane's Purple.

A branch of Imperial grape, from Manistee, is entitled to favorable mention; also, two plates of Coe's Golden Drop, wrongly entered as Yellow Egg. It being past the season for most varieties of plums, the show is meager, but the specimens exhibited furnish convincing proof that the sandy soils of the Michigan Fruit Belt, as well as the heavier soils of the interior, are well adapted to the growth of this delicious fruit, and the committee would recommend every owner of a rod of ground to plant at least one plum tree, and thereby in a few years gratify the laudable ambition of becoming "worth a plum." It being past the season for apricots and nectarines, no entries were made.

C. L. SHEPHERD,
CHAS. ALFORD,
Committee.

* NOTE.—The committee do not mention the very fine exhibition of many varieties of grapes made by Mr. E. Bradfield, nor Mr. Haldane's noted Isabella, probably on account of these gentlemen being members of the committee.—SECRETARY.

DIVISION H—SEEDLING FRUITS.

Class 1—Best collection of seedling fruits. James Dias, Gaines, first premium, \$5.

The committee appointed to examine seedling fruits awarded no premiums, but returned the following report:

Your committee beg leave to report, that though they find nothing among the seedling fruits that, under the rules of the society, seem to them clearly entitled to a premium, there are several varieties worthy of note, and that may at a future time, when presented accompanied with a history of origin, statement of habit of tree, keeping qualities, etc., be entitled to an award.

Mr. James Dias of Gaines presented several seedling apples, among which we find one of some apparent marked character. It is evidently a long-keeping winter sort,—something of the Newtown Pippin type, but oblong in form. We recommend that this apple be presented at some future *winter* meeting of the society. Mr. D. presented other fine specimens of winter apples, but the season precludes the possibility of judging of their value.

S. M. Pearsoll of Alpine had on exhibition a number of varieties of apples, the most promising of which, in our estimation, is an autumn variety, resembling very much the Clyde Beauty, but somewhat larger. While its fairness and productiveness may recommend it for market, it was thought not so high in quality as our instructions require.

A fine looking seedling entitled Florida elicited some commendation; a light conical apple, with a blush. It was said to have originated with W. H. Hurlbut of South Haven, and to have grown from the seed of apples washed ashore from the wreck of the schooner Florida, November, 1841. The tree is of luxuriant growth, with spreading head, and a good annual bearer. Season—October.

We find of seedling grapes four entries, three of which are of the wild *Labrusca* type. One is a green grape, not ripe, and thought to be one of the named varieties, but too late for value.

Pearly W. Johnson of Walker presented a seedling peach of very fine quality, but unaccompanied with history.

D. Boynton, Benton Harbor, presented a peach known as Boynton's Seedling; a yellow flush peach, with little red; cultivated to some extent in the region of its origin; may be found worthy of further attention.

A. W. Slayton of Grattan brought forward a seedling peach of some apparent merit. This is not ripe, and, though promising, is without a history.

Mr. S. also had on exhibition a seedling autumn apple of more than usual promise. In size it is medium to large; in form, roundish, slightly conical, some specimens a little flattened; color, light yellow, with occasionally a blush. It is not yet fully ripe, its season being from October to December. Though not of very high quality, its large size, fairness, and good keeping qualities may make it worthy of further attention. The fact that it is being grafted to some extent in the vicinity of Grattan—the name by which the apple is known—is some indication of value. It is certainly a beautiful apple, and it is quite probable it will be heard from hereafter.

There were entered nine seedling pears, but the committee could only find two varieties. These were neither of them ripe, and therefore no conclusion as to their value could be arrived at.

There was a seedling quince and a seedling crab apple entered, but neither possessed any apparent value over the standard sort.

N. P. Husted of Lowell presented a plum that is evidently worthy of extensive culture. It is not known to be a seedling, though there is some reason to think it may be. It is a large blue plum, with full bloom, and of excellent quality. The committee would not have hesitated to award it a premium had they felt assured of its seedling character.

In conclusion, while we feel constrained to withhold a premium from all articles in this class, we would commend

the enterprise in the production of new fruits, and do not doubt that ultimately they will be crowned with valuable attainments.

B. HATHEWAY,
S. M. PEARSOLL,
JACOB GANZHORN.

DIVISION I—QUINCES, NUTS, AND SMALL FRUITS.

Best collection quinces—G. B. Rathbun, city.

Best peck quinces, single variety—G. W. Chadwick, city.

Best collection native nuts—A. W. Slayton, Grattan.

Best half-peck hazel nuts—Henry Seymour, Jr., Paris.

Best half-peck hickory nuts—Willie Dietrich, Grand Rapids.

Best half-peck butternuts—F. Hall, Ada, first premium; Chas. Alvord, Lamont, second premium.

The committee would report the collection in this division small, but the samples that are exhibited are very fine, and well merit awards.

C. J. DIETRICH, *Chairman*.

DIVISION J—DRIED FRUITS AND PICKLES.

Collection dried fruits—First premium, John Gilbert, Ovid, Clinton county.

Dried apples—First premium, Chas. Alford, Lamont, Ottawa county; second premium, Mrs. G. W. Dickinson, Grand Rapids town.

Dried pears—First premium, Mrs. Daniel Schermerhorn, Walker; second premium, Mrs. G. W. Dickinson.

Dried peaches—First premium, N. Cumings, Englishville; second premium, Chas. Alford.

Dried plums—First premium, Mrs. G. W. Dickinson.

Dried cherries—First premium, Mrs. G. W. Dickinson; second premium, Mrs. Schermerhorn.

Dried currants—First premium, Mrs. Wm. Rowe, Walker; second premium, Mrs. Daniel Schermerhorn.

Dried raspberries—First premium, Mrs. Schermerhorn; second premium, Mrs. G. W. Dickinson.

Dried blackberries—First premium, Mrs. Schermerhorn.

Dried whortleberries—First premium, Mrs. D. K. Emmons, city; second premium, Mrs. Schermerhorn.

Dried pumpkin—First premium, Mrs. G. W. Dickinson; second premium, Mrs. D. Schermerhorn.

Pickled peaches—First premium, Mrs. G. W. Dickinson.

Catsup—First premium, Mrs. D. Schermerhorn; second premium, Mrs. G. W. Dickinson.

Pickled cucumbers—First premium, Mrs. G. W. Dickinson; second premium, Mrs. D. Schermerhorn.

Pickled beans—First premium, Mrs. D. Schermerhorn.

Committee—Mrs. S. L. Fuller, Mr. and Mrs. Joseph Beach, Mrs. C. C. Rood, Mrs. Wesley F. Wood.

DIVISION K—CANNED FRUITS.

Canned pears—First premium, Mrs. J. P. Goss, Boston, Ionia county; second premium, Mrs. Daniel Schermerhorn, Walker, Kent county.

Canned pared peaches—First premium, Mrs. G. W. Dickinson, Grand Rapids town; second premium, Mrs. D. Schermerhorn.

Canned whole peaches—First premium, N. Cumings, Englishville, Kent county; second premium, Mrs. Wm. Rowe, Walker.

Canned plums—First premium, Mrs. W. N. Cook, city; second premium, Mrs. J. P. Goss, Boston.

Canned cherries—First premium, Mrs. G. W. Dickinson; second premium, N. Cumings.

Canned Siberian apples—First premium, Mrs. Wm. Rowe.

Canned raspberries—First premium, Mrs. D. Schermerhorn.

Canned blackberries—First premium, Mrs. G. W. Dickinson.

Canned whortleberries—First premium, Mrs. G. W. Dickinson; second premium, Mrs. Wm. Rowe.

Canned gooseberries—First premium, Mrs. Wm. Rowe; second premium, Mrs. D. Schermerhorn.

Canned currants—First premium, Mrs. Wm. Rowe; second premium, Mrs. Schermerhorn.

Canned pie-plant—First premium, Mrs. Wm. Rowe; second premium, Mrs. D. Schermerhorn.

Canned tomato—First premium, Mrs. Wm. Rowe; second premium, Mrs. G. W. Dickinson.

Canned corn—First premium, Mrs. G. W. Dickinson.

There were no entries for canned grapes, strawberries, quinces, apples, pumpkin, or asparagus. The acting committee, Mrs. S. L. Withey and Mrs. O. A. Horton, remark as follows: "The committee report a large collection of canned fruit of fine quality, and in many cases we found it difficult to decide which was best. Several collections not entered for premiums attracted special attention. That of Mr. Husted was especially fine; also, that entered in the Kent county collection. These collections were all of home manufacture, and exhibited well the good housewifery of this part of the State."

DIVISION L—PRESERVED FRUIT AND JELLIES.

Siberian Crab jelly—First premium, Mrs. George Smith, Walker.

Pie-plant jelly—First premium, Hon. Stephen Rossman, Greenville, Montcalm county.

Tomato jelly—First premium, Hon. Stephen Rossman.

Apple butter—First premium, Mrs. D. Schermerhorn, Walker.

There were many beautiful specimens of jelly on exhibition, but they were included in the larger collections. It was not at all creditable to the ladies, however, that the exhibition of preserved fruit was so meager and unsatisfactory.

MRS. H. G. HOLT, *and others,*
Committee.

DIVISION M—WINES, CIDER, VINEGAR, CORDIALS, ETC.

Collection foreign wines—First premium, Hart & Amberg, city.

Collection domestic wines—First premium, Hart & Amberg.

Currant wine—First premium, J. D. Davis, city.

Blackberry wine—First premium, Hart & Amberg.

Clinton wine—First premium, Hunter Savidge, Spring Lake.

Concord wine—First premium, Geo. Hosford, Ionia.

Isabella wine—First premium, Wm. Haldane, city.

Catawba wine—First premium, Hart & Amberg.

Elderberry wine—First premium, Mrs. Wm. Rowe, Walker.

Boiled cider—First premium, Mrs. D. Schermerhorn, Walker.

Cider vinegar—First premium, Mrs. D. Schermerhorn.

The committee, composed of E. P. Fuller, city, chairman ; Charles Gay, Big Rapids ; A. W. Tyrrell, Detroit ; Erasmus Davis, Kalamazoo ; and D. B. Dennis, Coldwater, in their report, remark as follows : “The Isabella wine of Mr. Haldane’s is a very choice and superior article. Edward Bradfield of Ada exhibits a sample of ten months’ old Iona wine, which is of exquisite quality ; also, a sample of Delaware wine which is worthy of special premium. The article entered by Hart & Amberg as raspberry wine is raspberry *syrup*, and as such is entitled to a premium. A sample of raspberry vinegar is excellent and deserves notice.”

DIVISION N—NURSERY STOCK.

Apple trees two years old—First premium, N. P. Husted, Lowell. Second premium, Lake Shore Horticultural Society, Douglass, Allegan county.

Cherry trees, Dukes and Morellos, two years old—First premium, N. P. Husted.

Cherry trees, Bigarreau—First premium, N. P. Husted.

Peach trees, one year old—First premium, Thomas Archer, St. Joseph.

Wagener apple trees two years old—Special premium, A. T. Linderman, city.

ERASMUS DAVIS,
D. BOYNTON,
H. E. LIGHT.

Committee.

DIVISION O—CONSERVATORY AND PARLOR PLANTS.

Collection conservatory and parlor plants—First premium, John Suttle, city.

Abutilon (single)—First premium, T. R. Renwick, city.

Collection double flowering Geraniums—John Suttle, city.

Geranium (double)—First premium, John Suttle.

Collection gold, silver, and bronze-leaved Geranium—First premium, John Suttle.

Geranium, variegated and single—First premium, John Suttle.

Collection ivy-leaved Geraniums—First premium, John Suttle.

Pelargonium (single)—First premium, John Suttle.

Collection Fuschias—First premium, John Suttle.

Fuschia (single)—First premium, T. R. Renwick.

Fuschia (double)—First premium, John Suttle.
 Collection Monthly Roses—First premium, John Suttle.
 Rose, Monthly—First premium, John Suttle.
 Calla—First premium, T. R. Renwick.
 Collection Begonias—First premium, John Suttle.
 Begonia (single)—First premium, T. R. Renwick.
 Collection ornamental foliage plants—First premium, John Suttle.
 Ornamental foliage plant (single)—First premium, T. R. Renwick.
 Collection parlor climbers—First premium, John Suttle.
 Ornamental climber (single)—First premium, T. R. Renwick.
 Collection Ferns—First premium, John Suttle.
 Fern (single)—First premium, John Suttle.
 Collection mosses—First premium, John Suttle.
 Hanging basket filled—First premium, T. R. Renwick.

The show of flowers in this class was very fine, and elicited hearty praise from all spectators.

Mrs. MINA MORMAN,
 Mrs. WM. ROWE,
 MR. N. R. MORMAN,
Committee.

DIVISION F—BEDDING PLANTS, NOT HARDY.

Class 2—Best collection Verbenas, ten or more varieties. John Suttle, Grand Rapids city, first premium, \$1.
 Class 5—Best collection Pansies. Mrs. Wm. Rowe, Grand Rapids, first premium, \$1.
 Class 7—Best collection Antirrhinums. Mrs. Wm. Rowe, Grand Rapids, first premium, \$1.
 Class 8—Best collection Petunias. John Suttle, Grand Rapids, first premium, \$1.
 Class 10—Best collection Carnation Pinks. John Suttle, first premium, \$1.
 Class 12—Best collection ornamental foliage plants. John Suttle, first premium, \$2.
 Class 13—Best collection Coleus. T. R. Renwick, Grand Rapids city, first premium, \$1.
 Class 14—Best collection Achryanthus. John Suttle, first premium, \$1.
 Class 15—Best Pyrethrum. John Suttle, first premium, 50 cents.
 Class 22—Best single Petunia. John Suttle, first premium, 50 cents.
 Class 23—Best double Petunia. John Suttle, first premium, 50 cents.
 Class 24—Best Coleus. John Suttle, first premium, 50 cents.
 Class 26—Best Centaurea. John Suttle, first premium, 50 cents.
 Class 31—Best Carnation Pink. John Suttle, first premium, \$1.

C. O. ROCKWELL,
 Mrs. M. SHEPHERD,
Committee.

DIVISION R—SHRUBBERY, HERBACEOUS PLANTS, AND ANNUALS, HARDY.

Collection of flowers and shrubs—First premium, Mrs. Geo. Smith, Walker; second premium, Mrs. Wm. Rowe, Walker.
 Hybrid Perpetual Roses—First premium, John Suttle, city.
 Hybrid single Rose—First premium, John Suttle.
 Collection of Phlox—First premium, John Suttle.
 Collection of Japan Pinks—First premium, Mrs. Geo. Smith.
 Collection of Annuals—First premium, Mrs. Wm. Rowe.
 Collection of Phlox Drummondii—First premium, Mrs. George Smith.

Collection of Asters—First premium, Mrs. Wm. Rowe.
 Collection of Ten Weeks' Stalk—First premium, Mrs. Wm. Rowe.
 Collection of Zinnias—First premium, Mrs. Wm. Rowe.
 Collection of Larkspurs—First premium, Mrs. Wm. Rowe.
 Collection of everlasting flowers—First premium, Mrs. Wm. Rowe.
 Collection of ornamental grasses—First premium, Mrs. Wm. Rowe.

I. RANSOM SANFORD,
 JULIA RENWICK,
 MRS. A. S. STANNARD,
Committee.

DIVISION S—PLANTS AND BULBS.

Collection Dahlias—First premium, John Suttle, city.
 Dahlia blooms—First premium, John Suttle.
 Dahlia, single—First premium, John Suttle.
 Collection Gladioli—First premium, John Suttle.
 Gladiolus, single—First premium, John Suttle.
 Canna—First premium, T. R. Renwick, city.
 Calladiums, three—First premium, John Suttle.
 Calladium, single—First premium, John Suttle.

WM. ROWE.
 MRS. A. S. STANNARD,
 MRS. C. P. PRINGLE,
Committee.

DIVISION T—BOUQUETS AND FLORAL ORNAMENTS.

Floral mound or pyramid—First premium, Mrs. Wm. Rowe, Walker.
 Floral design—First premium, Mrs. A. D. Noble, Walker.
 Round bouquet—First premium, John Suttle.
 Flat bouquet—First premium, John Suttle.
 Bouquet of dried or everlasting flowers—First premium, Mrs. Wm. Rowe.
 Cage of canary birds—First premium, T. R. Renwick, city.

I. R. SANFORD,
 JULIA RENWICK,
 C. O. ROCKWELL,
Committee.

DIVISION U—FRUIT AND FLOWER ILLUSTRATIONS.

Flower Chromo—First premium, Lyman Patten, city; second premium, Mrs. C. J. Deitrich, Grand Rapids town.

Fruit Chromo—First premium, Lyman Patten, city; second premium, Van Houten, Goebel & Co., city.

Album or bound volume of fruit and flower illustrations—First premium, Lyman Patten, city.

Crayon fruit piece—Special premium, \$2, Master Willie A. Innis, city.

Much credit is due to Mrs. Gray for her pictures which she placed on exhibition. Among them were choice pieces by the favorite artist of Grand Rapids, L. C. Earle. Mr. Patten's display of pictures added greatly to the attractiveness of the Hall. Mr. Geo. Kendall's contributions from his private collection were greatly admired, especially the one by Mr. Earle.

GRAND DISPLAY OF FRUIT IN POMOLOGICAL HALL—SIX HUNDRED AND FOUR ENTRIES.

HOME FRUITS.

Perhaps the easiest way to describe the hall will be to tell first of our home fruits, beginning with the county collections, for they were certainly very important features, and the fact that the State Pomological Society, in its infancy as yet, has been so signally seconded by fruit-growers, even from the far off counties, is worthy of first mention. One thing is certain, the people of Michigan may well feel assured that their State is the fruit region of the West, and our home fruits are not absorbed in the company of specimens grown abroad.

The first in the county collections, and that which took the first premium, was the one from Wayne county.

It came some distance, and may well cause those who sent it a real pride in thus getting the first premium, for it was carefully selected, well arranged, and contained the largest collection of apples in the hall, there being one hundred and fifty-eight varieties. There were also twenty-seven varieties of native grapes, and a fine display of fifteen varieties of foreign grapes from Capt. E. B. Ward's greenhouse.

Kent county took the second premium for county collections, which is by no means a bad proof of the motto hanging over its display: "Kent county claims a place in the Fruit Belt." There were one-hundred and twenty-five varieties of apples, sixteen of pears, fourteen of peaches, and a fine collection of canned fruits, some very large specimens of Black Hamburg and White Fontainebleau (foreign) grapes, from the 'grapery of Mrs. Morris, in the city.

Among the principal contributors of fruit were Peter Beckwith of Grand Rapids township, and N. Peck of the same township, of apples; W. O. Houghtaling of the same township, of pears; J. Dias of Gaines, of peaches and apples; Thomas Blain, Gaines, of apples and pears; Mr. Bradfield, Ada, of native, and Geo. Kendall, city, of foreign grapes.

Clinton county sent in a fine collection, which obtained the third premium, and demonstrated the truth of its motto: "Clinton County salutes the Union Fair with the King of Fruits."

There were one hundred and ten varieties of apples, thirty varieties of other fruit, eleven of canned fruit, and a fine collection of apples, which made good, in every sense, its claim to kingly position and homage.

Eaton county obtained the fourth premium, and its collection was fine enough to have deserved a motto like its neighbors. The good people of that section of our State certainly have their share of good things to eat.

The township collections were very fine and their mottoes very appropriate. Each one is worthy a column of space, had we it to give, but others must be mentioned and the description must be brief.

Grand Rapids presented a large collection of apples; there were one hundred and thirty-four varieties of different kinds of fruits. Some very large Delaware grapes, splendid Onondaga pears, Golden Seedling strawberries, in fruit, a Gloria Mundi apple fourteen inches in circumference, were especially noticed.

Alpine Town had its corner, and most truly was its motto verified, for she certainly did "Welcome her friends with fruit and flowers."

The fruit was contributed by fourteen individuals, and contained one hundred varieties of apples and pears and peaches, some of which wore "the blue."

Grattan town "prays give us this day our daily bread, fruit without end, amen," and, judging from the display, has had,

her prayer abundantly answered this year. There were eighty-one varieties of apples, sixty-five of other fruits, and a seedling apple of real merit, called "Grattan." Some very fine Wagners, Northern Spys, and Red Canadas were seen in this collection.

Greenwood town, fully seventy miles off, in Oceana county, in fact where some have supposed that nothing grew but pines and wild animals, had: "Greenwood comes seventy miles to show what the pine woods can do." Those who examined the collection are well satisfied that the largest kind of Bartlett pears and Northern Spy apples can be raised there. One of the Northern Spys measured fourteen inches in circumference.

Spring Lake town did as was said, and sent her fruits and mineral waters.

There were some fine varieties, and quite a number of "bits of blue" might be seen scattered about in the collection. There were forty-six varieties of apples, eight of pears, sixteen of peaches, twenty-seven of grapes, eight of canned fruits, and two of wine. They grow big apples in that country. A Cayuga Red Streak thirteen inches, an Autumn Strawberry neatly thirteen inches, a Tompkins County King thirteen inches, and a Fall Pippin twelve and one-half inches in circumference, are fruits no to be despised, especially as their flavor is only equaled by their size.

Hart town, another from Oceana county, says, she "makes a beginning, and here it is;" and truly it is a good beginning. There were nice apples, and those "sand barrens" were demonstrated to be able to raise Red Streaks thirteen inches around.

Kalamo town, in Eaton county, was, like the county collection from Eaton, without a motto, but its fruit spoke for itself, and the display showed how far east and south from the lake the fruit-belt extends.

These collections have not been reported yet by the committees, but when the "blue" is given them, it shall be told which obtains it.

The Grand River Nurseries, whose large evergreen wreaths were distinctly visible from all parts of the hall, were well represented, and the Messrs. Husted may well be proud of the notice their fruits attracted. The collection was the largest one in the hall, embracing eighty varieties of apples, twenty of pears, six of peaches, twelve of plums, fifteen of grapes, six of the new varieties of crab apples, and seventy-five of canned fruits and jellies. The collection also contained splendid samples of Wagener apples, Canada egg plums, Transcendent crab apples, and other fruits. There were also some fine specimens of trees, which are now well covered with blue.

The South Haven Pomological Society's "First effort to the State Pomological Society" was well worthy a place in a Michigan State collection, or in any other State, for that matter.

There were ninety varieties of apples, thirty-two of pears, forty-one of grapes, thirty one of peaches, and twelve other collections embracing quinces, nectarines, almonds, and figs. There were some very fine pears, and among these a Seckel $17\frac{1}{2}$ inches, and a Flemish Beauty $11\frac{1}{4}$ inches in circumference, and also a Colvert apple $14\frac{1}{2}$ inches around.

The Lake Shore Pomological Society of Douglas, Allegan county, exhibited some fine fruits and trees, some of the trees winning the red favors.

There were twenty-seven varieties of fruit, containing specimens of Crawford peaches, Bartlett pears, and a new variety of grapes called the Perkins.

There were many very fine individual collections, though want of space forbids special mention. However, a few mentions will be excused.

The collection of Charles Alford of Lamont, Ottawa county, was very fine. It included sixty-eight varieties of apples, among them a Virginia Sweet $13\frac{1}{2}$ inches in circumference, a very large Tompkins County King, and also some nice Peck's Pleasant and Sweet Bough.

Mr. B. Hathaway of Little Prairie Ronde offered a fine collection of Hybrid grapes, including thirty-one varieties.

Mr. Davis of Kalamazoo also sent fifteen varieties of grapes.

Mr. Howard of Allegan sent fifteen varieties of grapes.

D. Boynton of Benton Harbor sent a premium collection of peaches.

A. L. Soule of Spring Lake had first premiums on some of his peaches.

Sanford & Snow of Muskegon obtained the blue for their pears.

J. G. Ramsdell of Manistee, H. Holt of Cascade, Wm. Rowe of Walker, and many others, whose names will be found in the premium list, exhibited private collections that were particularly nice.

The individual collections of varieties of apples, peaches, pears, grapes, quinces, canned fruits, jellies, jams, and wines, numbered in all many hundred specimens.

FOREIGN FRUITS.

The California State Agricultural Society added to her fame largely by sending us a fine collection of her choice fruits.

There were twenty-six varieties of apples, very large, being the leading choice fruit of the State, which included Rhode Island Greenings, 14 inches; Fall Pippins, 13½ inches; Yellow Bellflowers, 12 inches; English Russets, 10 inches; Baldwins, 13 inches; Rambos, 13 inches in circumference, which were grown by Mr. Greenlaw of the State Society. There were also seven kinds of pears, some of them 12 inches around, and others weighing one pound each.

The collection included seventeen kinds of grapes. The Muscat was represented by a bunch containing single grapes over one inch in diameter; also single clusters of Flann Tokay weighing four pounds, and of Black Lombardy five and a half pounds each.

The State Pomological Society certainly is very grateful for the good will expressed by the Californians in thus remembering it, and the amicable relations thus commenced will doubtless continue ever.

There was a very fine collection, sent by the National Pomological Society, opened and arranged.

FLOWERS.

The display of flowers made by Mr. John P. Suttle, the Fulton street florist, was the largest, and, in some respects, the finest, in the hall. The conservatory and parlor plants, varieties of Stocks and Colei, masses of ferns and foliage, Dahlia blooms and—well, when one sees so much of beauty, so much to attract the eye and *dis*-tract the brain, special description fails, and all that can be said is, go and see it yourselves, especially the blue displayed with it.

Mr. T. C. Renwick had a very fine display of ferns and mosses, the foliage attracting large numbers, who stopped, when they came nearer, to admire the fine cage of canary birds which formed a part of the exhibition. He was also well remembered by the viewing committee, who deemed the blue to be an appropriate adornment for parts of his collection.

Mrs. William Rowe, a lady living about three miles from the city, in the town of Walker, who devotes many of her leisure moments to the cultivation of flowers and fruits, made a most beautiful display in the department. The pyramid was one of the distinguishing features of this department, as were also the Everlastings, ornamental grasses, etc. Mrs. Rouse had due attention at the hands of the viewing committee, as the presence of the blue ribbon will testify. Some fine wax flowers and birds, owners' names unknown, and a beautiful vase of ferns, sent merely for exhibition, from the conservatory of Mrs. James M. Nelson, and a beautiful cross, built by fair hands too modest to tell of it, were among the more noticeable articles of this beautiful department.

A GRAND SUCCESS.

The exhibition of our State Pomological Society is a complete success, and its officers and managers are to be congratulated. The opinions of the people at large are unanimous in

saying that, although the other portions are very fine, "Pomological" is *the* feature of the Fair. All who go in are struck with the beautiful evergreens and fine paintings (many of them from Patten's Art Emporium), which materially aid in making it a scene of unrivaled beauty. Crowds, the densest on the grounds, continually throng the hall, yet all are pervaded with a feeling of respect,—of kindness toward everybody, which leads to perfect decorum in manners, and the best of behavior. The officers return their thanks most sincerely, for this manifestation on the part of the people.

The State Pomological Society will be one of the educational powers in it, and all who are interested (and who is not?) in the production of the finest kinds of fruit should sustain it, both by their aid during its Fairs, and by becoming members, either life or annual, and then taking an active part in its graver labors.

SNOUT BEETLES INJURIOUS TO FRUITS.

BY CHAS. V. RILEY, STATE ENTOMOLOGIST OF MISSOURI.
READ BEFORE THE ILLINOIS HORTICULTURAL SOCIETY.

Insects, like other animals, derive their nourishment from the vegetable and animal kingdoms; but a glance is sufficient to show that they possess a far greater field of operations than all the other animals combined. Indeed, the food of insects is a theme so large that I might occupy your entire time by dwelling upon it alone. The other animals use as food but a very small portion of the inexhaustible treasures of the vegetable kingdom, and the remainder is unpalatable or even poisonous to them. Not so with insects, for, from the gigantic *Banyan* which covers acres with its shade, or the majestic Oak to the invisible fungus, the vegetable creation is one vast banquet, to which they sit down as guests. The larger plant-feeding animals are also generally confined, in their diet, to the leaves, seeds, or stalks, being either foliaceous or farinaceous; but insects make every possible part of a plant yield them valuable provender. We have an excellent illustration of this omnipresent character of insects in those species which are well known to attack the common apple tree. Thus, beginning at the root, we find it rendered knotty and unhealthy on the outside by the common Root-louse (*Eriosoma pyri*, FITCH), while the heart is often entirely destroyed by one or the other of two gigantic Root-borers (*Prionis imbricornis*, LINN., and *P. laticollis*, DRURY). The trunk is riddled by the larvæ of several Long-horn beetles, and pre-eminently by the Two-striped Saperda (*Saperda bivittata*, SAY), as well as by other smaller beetles; the liber and alburnum are destroyed

by the Flat-headed Borer (*Chrysobothris femorata*, FABR.,) the outer bark eaten by bark beetles (*Scolytus* family) and sucked by Bark-lice peculiar to it. The branches and twigs are bored along the center and pruned by the larvæ of the common Pruner (*Elaphidion villosum*, FABR.), and by that of the Parallel Pruner (*E. parallelum*, LEC.), girdled by the Twig-girdler, *Oncideros cingulatus*, SAY*, sawed and rasped by the Periodical Cicadas, (*Cicada septemdecim*, LINN., and *C. tredecim*, RILEY), otherwise known as Seventeen-year Locusts, by tree-hoppers and a dozen other Homopterous insects; bored into from the side by the Twig-borer (*Bostri-chus bicaudatus*, SAY), wounded by the bites of such beetles as the New York Weevil, *Ithycerus novæboracensis*, FORSTER), or pierced as by a red-hot wire by small boring beetles (*Scolytidæ*).

The buds before they expand are infested with the larvæ of the Apple Bud-moth (*Grapholitha oculana*, HARR.), or entirely devoured by voracious climbing cut-worms (*Agrotis scandens*, RILEY, etc.). The blossom has no sooner unfolded its delicate and beautiful petals than it is devoured entire either by the Brazen Blister Beetle (*Lytta ænea*, SAY), the Striped Cucumber Beetle (*Diabrotica vittata*, FABR.), the Rose bug, or by a great many other insects that might be mentioned, some, as the different bees, confining themselves to the pollen or honey from the nectaries, while others again prefer other parts. The young fruit is either eaten partly or entirely by Snapping beetles (*Melanotus communis* and *M. incertus*), or punctured by either the Plum or the Apple Curculios, and afterwards bored through and through by their larvæ or by the ubiquitous Apple-worm (*Carpocapsa pomonella*); as it matures it is eaten into by the larvæ of the Plum Moth † (*Semasia prunivora*, WALSH), rendered putrid by the Apple Maggot (*Trypeta pomonella*, WALSH), and by the Apple Midge (*Molobrus mali*, FITCH); as it ripens it is gouged by the Flower Beetles,

* I have bred specimens of this insect from apple twigs.

† Inappropriately so-called by Mr. Walsh, as I shall presently show.

(*Euryomia inda* and *E. melancholica*), and disfigured by a variety of other insects, while the skin is often gnawed off and corroded by the larvæ of the Rose Leaf-roller (*Loxotænia rosaceana*, HARR.); and even the seed, if it should be preserved, will be attacked by the Grain Silvanus (*Silvanus surinamensis*, LINN.), the Dwarf Trogosita (*T. nana*, MELSH), and the larvæ of one or two small moths. And, as to the leaves, they are not only sapped and curled by the Apple Plant-louse (*Aphis mali*, FABR.), and by leaf-hoppers; rolled by several leaf-rollers; folded at the edges by a small, pale, undescribed worm which I shall soon describe; blistered by the Rosy Hispa (*Uroplata rosea*, WEBER); crumpled by the Leaf Crumpler (*Phycita nebula*, WALSH), mined by the Apple Micropteryx (*Micropteryx pomicorella*, PACK.); skeletonized and tied together by another undescribed worm, which I shall some day name *Acrobasis Hammondii*, in honor of one of your members,—but they are greedily devoured by a whole horde of caterpillars, from the tiny *Micropteryx* to the immense Cecropia Worm, some of which confine themselves to the parenchyma, some to the epidermis, some to the tender parts, without touching the veins, while others bodily devour the whole leaf. The sap forms the sole food of some insects, and even when the poor apple tree dies, a host of different insects revel in its dead and decaying parts, and hasten its dissolution, so that it may the more quickly be resolved into the mold from which it had, while living, derived most of its support, and through which it is to give nourishment for the young trees which are to take its place.

Thus we perceive that there is not a single part of the apple tree which is not made to cradle or to give nourishment to some particular insect, and the same might be said of almost every plant that grows on the face of the earth, even those which produce resinous or gummy substances, or which are pithy in the center, having special insects which feed upon these parts and on nothing else. There are insects—the gall

makers for instance—which, not satisfied with any existing part of the plants, as such, cause abnormal growths in which their young are reared.

Nor are insects confined to vegetables in their recent state. The block of hickory wood, fifty years after it is made up into wagon wheels, is as palatable to the Banded Borer (*Ceraphorus cinctus*, DRURY), which causes “powder-post,” as it was to the Painted Borer (*Clytus pictus*, DRURY), while green and growing; and a beam of oak, when it has supported the roof of a building for centuries, is as much to the taste of an *Anobium* as the same tree was, while growing, to the American Timber Beetle (*Hylecætus Americanus*, HARR). Some, to use the words of SPENCE, “would sooner feast on the herbarium of Brunfelsius, than on the greenest herbs that grow,” and others “to whom

‘A river and a sea
Are a dish of tea,
And a kingdom bread and butter,’

would prefer the geographical treasures of Saxton or Speed, in spite of their ink and alum, to the freshest rind of the flax plant.”

Indeed, it would be difficult to mention a substance, whether animal or vegetable, on which insects do not subsist. They revel and grow fat on such innutritious substances as cork, hair, wool, and feathers; and with powers of stomach which the dyspeptic sufferer may envy, will live luxuriously on horn; they insinuate themselves into the dead carcases of their own class; they are at home in the hottest and strongest spices, in the foulest filth, in the most putrid carrion; they can live and thrive upon or within the living bodies of the larger animals, or those of their own class; they are at home in the intestinal heat of many large animals, reveling in the horse’s stomach, in a bath of chyme 102 degrees Fahr., or in the bowels of man, in an equally high temperature. Some have even been supposed to feed on minerals, and, not to dwell upon Barchewitz’s tale of East India ants, which eat iron, certain it is that

the larvæ of our May-flies (*Ephemera*) do eat earth, and I have known the larvæ of the common May Beetle to feed for three months upon nothing but pure soil; but in both these cases the insects undoubtedly derive nourishment from the vegetable matter which is extracted from the earth by the action of the stomach.

These facts will serve to show you that, seek where you may, you cannot find a place or a substance in which, or on which, some insect does not feed. They people the skyey vast above, swim at ease in the water, and penetrate the solid earth beneath our feet; while some of them inhabit indifferently all three of the elements at different epochs of their lives.

Now when we reflect that there are at least half a million—if not a full million—distinct species of insects in this sublunary world of ours, and that their habits and habitations are so diversified, it would really seem as though entomology was a subject too vast for any one man to shoulder; and indeed it is in all conscience extensive enough. The science of entomology is, however, so perfect in itself, and its classification is so beautiful and simple, that a particular species is referred to its Order, its Family, its Genus, and finally separated from the other species of that genus, with the greatest ease, and with a feeling of true satisfaction and triumph, by those who have mastered the rudiments of the science. And, very fortunately, it is not necessary for the practical fruit-grower to enter into the minutiae of species, or even of genera, in order to learn the habits of the insects which interest him in one way or another. These minutiae must be left to the professed entomologist.

There is not an insect on the face of the globe which can not be placed in one or the other of seven, or, more properly speaking, eight great Orders; so that, unlike the Botanist, the Entomologist is not bewildered by an innumerable array of these Orders, though he has five times as many species to deal with. These Orders comprise about two hundred families,

many of which may, for practical purposes, be grouped into one family—as, for instance, the seven families of Digger-wasps, and the five large Families which have all the same habits as the true or genuine Ichneumon-flies. Many more may be neglected as small, rare, or unimportant; so that practically there will remain about a hundred family types to be learned. Each family, as Agassiz has well remarked, may, with a little practice, be distinguished at a glance by its general appearance, just as every child, with a little practice, learns to distinguish the family of A's from the family of B's, and these from the family of C's in the alphabet. There is the Old English A, the German text A, and a host of ornamental A's, both in the capital letter and the small or “lower-case” letter, as the printers call it; but the family likeness runs through them all, and it is astonishing how quick a child learns to distinguish each family type. It is true there are a few abnormal or eccentric insects—there were some which deceived even Linnaeus—which put on the habit of strange families, just as an eel, which is a true fish with fins, puts on the habit of a snake,—a reptile without fins. But these are the exceptions and not the rule.

Now it is wisely ordained that every family, as a general rule, has not only a distinctive family appearance, but also distinct family manners. For example, nobody ever saw an Ichneumon-fly construct a nest and provision it with insects, as does a Digger-wasp; and nobody ever saw a Digger-wasp deposit its eggs in the body of a living insect at large in the woods, as an Ichneumon Fly does. But each family maintains its peculiar family habits, and cannot be induced to deviate from them.

So universally is this the case, that if you bring me an insect which I never saw in my life, I will tell you half its history at a glance. It is this “unity of habits,” this beautiful provision of nature, definite family likeness, accompanied by definite family habits, which so simplifies the task of the

practical man; for, instead of having to study the diversified habits of half a million species, he has but to acquaint himself with the appearance and characteristics of one hundred families; and if the rudiments of entomology had been taught you, gentlemen, at school, so that you had become familiar with these hundred family types, you would now be much better able to cope with your insect enemies. When I think that it would take a child no longer to learn these one hundred family types than it does to learn the one hundred different types which compose the four alphabets—the Roman capital and small alphabet and the writing capital and small alphabet—I fully expect, and sincerely hope, that in the public schools of this country we shall soon have text-books introduced which will cover the ground as well, and occupy the same place as do those useful works of Lennis, and Troschel & Ruthe, in the public schools of Germany.

With these few remarks, which are intended to show that the practical man may easily obtain a general knowledge of his insect friends and enemies, notwithstanding the wide field of their operations and the immense number of species which exist, we will now dwell for a while on one of these families, which deeply interest you as fruit-growers, namely:

THE CURCULIONIDÆ OR SNOUT-BEETLES.

This is one of the very largest and most conspicuous Families in the order of beetles (*Coleoptera*), comprising, as it does, over 10,000 distinct and described species. It is at once distinguished from all the other families of beetles by the front of the head being produced into a more or less elongated snout or rostrum, at the extremity of which the mouth is situated. The snout is sometimes very long and as fine as a hair (genus *Balaninus*), and sometimes as broad as the head (genus *Bronthus*); but it always forms part and parcel of the head, and does not articulate on it as does the snout or proboscis of the true Bugs (*Hemiptera*), or the tongue of moths and butterflies. The other chief characteristics of the family are an apparently

four-jointed tarsus or foot (though in reality there are more generally five joints), an ovoid form, narrowing in front, the sides pressed by the convex elytra or wing-covers, the antennæ or feelers attached to the snout, and either elbowed or straight, and composed of nine, ten, eleven, or twelve joints,—the first of which is always long, and the terminal three generally united in a club or knob ; and finally, stout legs with swollen thighs, sometimes bearing spines.

The larvæ of these snout-beetles are whitish or yellowish, and fleshy grubs, always without legs, or having only in the place of them fleshy tubercles, which in a measure perform the functions of legs ; the body is oblong, with the back generally arched, but sometimes straight. With these characteristics in your mind you cannot fail to recognize a snout-beetle when you see one. Now there is hardly one of the one hundred families that I have referred to from which so many injurious species can be enumerated, for with the exception of an European species (*Anthribus varius*), whose larvæ was found by Ratzeburg to destroy bark-lice, they are all vegetarians, the larvæ inhabiting either the roots, stems, leaves, or fruits of plants, and the beetles feeding on the same. So, whenever you find an insect with the characters just given, you may rest morally certain that it is injurious, and should be destroyed without mercy. This family is not only one of the most injurious, but, on account of the secretive habits of the larvæ, the insects comprising it are the most difficult to control. When a worm is openly and above board denuding our trees, we at least readily become aware of the fact, and can, if we choose, apply the remedy ; but when it surreptitiously, and always under cover, gnaws away at the heart of our grains and fruits, we become in a measure helpless to defend ourselves. But even here, where the enemy is so well ambushed and hidden, the proper tactics, based on thorough knowledge, will frequently enable us to penetrate the defenses and conquer the foe.

Before leaving this subject of Families, let me impress upon your minds another important fact, namely, that the Family is not peculiar to any one country, and that while species vary, the Family has the same habits and characteristics all over the world. Thus in Europe we find the snout-beetles as injurious, and as difficult to manage,—if not more so,—than they are in this country. One species (*Rhynchites conicus*, HBST.), deposits eggs in the twigs of pear, plum, cherry, and apricot, and girdles the twig to make it fall; another (*Rhynchites bacchus*, SCHÆN), infests the fruit, and still another (*Anthonomus pyri*, SCHÆN), the flower bud of the pear. One, (*Rhynchites betuleti*), rolls up grape leaves and partly cuts their stems, so that they perish, while another (*Anthonomus pomorum*, SCH.), infests the blossom bud of the apple, and renders it unfertile. Still another inhabits the blossom bud of the cherry. *Balaninus nucum* is found in the common hazel-nut, and *B. cerasorum* in cherry pits; *Apion apricans* devours the seed of clover; *Otiorhynchus sulcatus*, SCH., infests the crown of strawberries, and two different species, (*Baris chlorizans*, SCHÆN, and *Ceutorhynchus napi*, SCHÆN), infests the stems of cabbages and turnips.

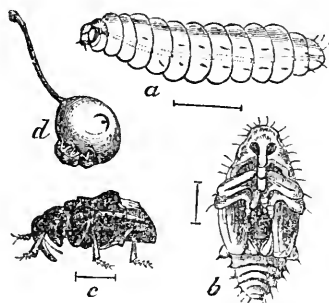
But after all, a single species—the “Little Turk,” for instance—sometimes causes more loss of fruit in this country than all the above enumerated species do to the European cultivator; and though much of this comparative incapacity for harm, on the part of their insects, may be in a measure due to the better knowledge of his foes, which the transatlantic cultivator possesses, to the more careful culture which he pursues, and the usually limited extent of his orchard, compared with ours; yet it greatly depends on other causes, which the time allowed will not permit me to dwell upon. So I will at once proceed to say a few words about those of our own Snout-beetles, which more particularly interest you.

THE COMMON PLUM CURCULIO.

(Conotrachelus nenuphar, HERBST.)

IT IS SINGLE-BROODED, AND HIBERNATES AS A BEETLE.

At your last annual meeting, at Ottawa, I read an essay on this insect, giving the established facts in its history, the artificial remedies to be employed in fighting it, some account of the natural remedies, and concluded by referring to such points in its history as were then unsettled, or upon which there were different opinions expressed. It would be needless to repeat anything that was there said, for any new members who may not have heard the reading of that essay will find it in the Transactions; so we will confine ourselves to some of the mooted points. I am glad to be able to inform you that I have forever settled the principal question, namely, as to its being single or double-brooded.



(a) larva; (b) pupa; (c) beetle—all magnified; (d) beetle, natural size, showing how it punctures fruit.

You will recollect that authors have, from the beginning, held different views on this subject, and this fact should not surprise us when we bear in mind that they reasoned simply from conjecture; nor will it surprise us when we understand the facts in the case.

The facts that fresh and soft curculios are found in this latitude as early as the beginning of July, and that they still come out of the ground in August, or as late as September

and even October, in more northerly latitudes, are well calculated to mislead; while it was difficult to imagine an insect living ten months before ovipositing, without its dwindling away through the action of its enemies. But in the beetle state the *cureulio* has few, if any, enemies, and in my former writings on this subject I have shown that the other facts do not in the least prove the insect to be double-brooded. Among those whose opinions commanded respect, from their profound entomological knowledge and general accuracy, was Mr. Walsh, who, during his last years strenuously contended that this insect was double-brooded. For several years I have entertained a different opinion, believing that it was single-brooded as a rule, and only exceptionally double-brooded; and the facts so fully bear me out in this opinion, that, were my late associate here with us, to-day, I should bring forth the testimony with a feeling of triumph, for he was not often in the wrong! It is worthy of remark, however, that Mr. Walsh's first impression, as given by him in the year 1867,* was that this insect is single-brooded; his first opinion thus coinciding with what I have now proved to be the facts in the case.

In the First Missouri Entomological Report, I have reviewed the experiments which led him to change his opinion, and have shown that they did not warrant his final conclusion.

The many words that have been penned in the discussion of this question would fill a volume; but one stern fact, one thorough experiment, is worth more than all the theories that were ever conceived, or the phrases that were ever written on the subject.

At first it seems to be a very simple question to settle, but the fact that it remained unsettled so long would indicate the reverse. One of your worthy ex-presidents, Judge A. M. Brown of Villa Ridge, at my suggestion endeavored, in the summer of 1869, to solve the problem by imprisoning the first bred beetles and furnishing them with plucked fruit. Dr.

* *Practical Entomologist*, Vol. 1, No. 7.

Hull partially performed a like experiment, and I did the same myself; but we were met by the advocates of the double-brooded theory with the objection that such a test was of no value, as the curculio would not deposit on plucked fruit, or in confinement; and to add weight to their argument they would cite us to numerous instances among butterflies, to prove that many insects really will not deposit in confinement. But, as we shall see, they placed too much confidence in the instinct of Mrs. Turk when, from such premises, they made these deductions apply to her. As I proved over and over again, the question could not be solved, with any more certainty, by confining beetles to living boughs containing fruit, as the boughs could not well be covered with any substance through which the beetles would not gnaw their way out. So I determined last spring to build a frame over a large tree and entirely enclose it in stout gauze, that would neither let a flea in or out,—much less a curculio. Having accomplished this before the blossoms had fallen off the tree, I awaited with pleasurable interest the result from day to day, from week to week, and from month to month, engaging a competent person to watch when, from necessity, I was obliged to be away. It were worse than waste of time to detail here the many interesting observations made on this tree which I had under control, or to enumerate the many other experiments which I conducted in other ways, or the innumerable facts obtained; and it will suffice to give in a summary manner the results, premising only that every precaution was taken, and no expense spared, to prevent failure; that the experiments were satisfactory beyond my expectations, the results conclusive beyond all peradventure, and that I can prove every statement I make. To sum up, then: *The Plum Curculio is single-brooded*, and I have with me a number alive and kicking *which were bred during the latter part of June from the first stung peaches*. [These beetles, warmed by the artificial temperature of the hall, were quite active, and were feeding ravenously on a piece

of apple which I had placed in the bottle.] But, as there seem to be exceptions to all rules, so there are to this; yet the exceptions are only just about sufficient to prove the rule, for as far south as St. Louis, not more than one per cent of the beetles lay any eggs at all, until they have lived through one winter; or, in other words, where one female will pair and deposit a few eggs the same summer she was bred, ninety-nine will live on for nearly ten months and not deposit till the following spring. In more northern latitudes I doubt if any exceptions to the rule will be found.

As to the other mooted point, namely, whether this insect ever hibernates under ground in the larvæ state, I am perfectly satisfied that it never does, but that it passes the winter invariably as a beetle, under all sorts of shelter in the woods; generally, however, near the surface of the ground. Indeed, it often makes for itself a hole in the ground, seldom however deeper than its own body. In short, there is very little to alter or modify in the established facts in its natural history which I gave you last year. The egg instead of being "oval" as there stated, would be better described as "oblong-oval," measuring exactly 0.03 inch in length, and being nearly three times as long as wide. It should also be remarked here that when depositing her eggs in apples, the female often neglects the usual symbol of Mohammedanism which she so invariably inscribes on stone fruit; and that where this mark is made on apples, it more easily becomes obliterated.

During their beetle life these insects feed continually just as long as the weather is mild enough to make them active. While fruits last they gouge holes in it, and after peaches have gone, apples are badly attacked. They also gnaw large holes in the leaves, and, when nothing else presents, will feed on the bark of the tender twigs.

Let us be thankful, therefore, that there can no longer reasonably be difference of opinion, or discussion on these questions which, though of no very great practical importance were yet of great interest to us all.

IT IS NOCTURNAL RATHER THAN DIURNAL.

Before leaving this little Turk, however, I have some other facts to mention which were first brought to light the present year, and which have a most important practical bearing. You have been repeatedly told, and you no doubt have all come to believe it, that Curculios fly only during the heat of the day, and that it is useless to endeavor to catch them after, say, ten o'clock in the morning. Well, gentlemen, what I am about to utter will no doubt astonish you, but I know whereof I speak. *The Curculio is a nocturnal rather than a diurnal insect; is far more active at night than at day, and flies readily at night, into the bargain.* If any one doubts this assertion, let him go into his peach or plum orchard at midnight, with a lantern and sheet, and he will catch more than he could during the day, and will also find, to his sorrow, that they are then much more nimble and much bolder,—scarcely feigning death at all. Indeed, with the exception of such females as are busily occupied in depositing eggs, most of the Curculios rest during the day, sheltered either by the foliage or branches of the tree, or by any extraneous substance on the ground near by. They are also more active in the evening than in the morning, and these facts lead us to the important question, whether the morning or the evening is the best time to jar the trees. My experiments so far are not conclusive, for I have some days caught more in the morning, and at other times more in the evening. All other things being equal, the evening will prove preferable to the morning, from there being less dew at that time; and I particularly draw your attention to this matter now, that you may institute the proper experiments during the coming year.

THE RANSOM CHIP-TRAP PROCESS.

Another grand and successful mode of fighting the little Turk was also brought to light again, and to a great extent practiced the past summer. I allude to the Ransom chip-process for entrapping this insect. About the middle of May the

horticultural world was startled by a somewhat sensational article which was the burden of an extra to the *St. Joseph (Mich.) Herald*, headed "Great Discovery—Curculio Extermination Possible." The process consists in laying close around the butt of the tree, pieces of chips or bark, under which, according to their instinct, a great many of the Curculios secrete themselves during the day and may thus be easily destroyed. Now that we better understand this insect's habits, we also better comprehend the philosophy of this process. Being nocturnal in their habits, the beetles naturally seek shelter during the day, and especially is this the case early in the season, when the days are chilly, and before the females are too much engaged in egg-depositing. You are perhaps all familiar with the numerous opinions expressed as to the value and efficiency of this method; but I will here repeat my own as given to the readers of the *American Entomologist and Botanist*, first, because I endeavored to be candid and truthful, and, secondly, because the opinions expressed have been so fully corroborated by subsequent experience:

"We are really sorry to damp the ardor and enthusiasm of any person or persons, when enlisted in such a good cause; but truth obliges us to do so, nevertheless. Of course, Curculio extermination is possible! but not by the above method alone, as our Michigan friends will find to their sorrow. For a short time, early in the season, when the days are sometimes warm and the nights cold, and before the peach blossoms have withered away, we have succeeded in capturing Curculios under chips of wood and other such sheltered situations; but we have never been able to do so after the fruit was as large as a hazel-nut, and the little Turk had got fairly to work. Our Michigan friends will, we fear, find this to be too truly the case.

"This process, furthermore, cannot well be called a discovery, because it was discovered several years ago, as the following item from *Moore's Rural New Yorker*, of January 28th, 1865, will show:

"HOW TO CATCH CURCULIO.—In May last we had occasion to use some lumber. It was laid down in the vicinity of the plum-yard, and on taking up a piece of it one cold morning, we discovered a number of Curculios huddled together on the under side. On examining other boards, we found more; so we spread it out to see if we could catch more, and we continued to find more or less every day, for two weeks. We caught in all one hundred and sixty-one. So I think if people would take a little pains they might destroy a great many such pests. These were caught before the plum trees were in flower. What is most singular is, that we never found a Curculio on a piece of old lumber, although we put several pieces down to try them. They seemed to come out of the ground, as we could find them several times a day by turning over the boards.

"JOHNSONVILLE, N. Y.

"MRS. H. WIER."

"But though Mr. Ransom cannot properly claim to have made a new discovery, and though this mode of fighting will not prove sufficient to EXTERMINATE the Curculio, yet we greatly admire the earnestness and perseverance which he has exhibited. In demonstrating that so great a number of the little pests can be entrapped in the manner described, Mr. R. has laid the fruit-frowers of the country under lasting obligations to him. It is a grand movement towards the defeat of the foe, and one which, from its simplicity, should be universally adopted early in the season. But we must not relinquish the other methods of jarring during the summer, and of destroying the fallen fruit; for we repeat that the Plum Curculio will breed in the forest.

"I subsequently visited St. Joseph for the express purpose of examining more closely into Mr. Ransom's Curculio remedy. I found that so few Curculios had been caught under the chips after the first week in June, that nearly everybody, except Mr. Ransom, had for some time abandoned the method and were jarring their trees by one process or another.

"Mr. Ransom himself, by dint of unusual perseverance and great care in setting his traps, has had much better success than I had expected he would. On the 15th of June he caught 78: on the 16th, 97, and on the 17th, 71. For about a week

after this he scarcely caught any, but from the 24th to the 27th inclusive, he caught about 300. On the 6th of July I accompanied him around the outside rows of his orchard, and caught five under the traps. We had no opportunity to use the sheet, but I am satisfied that more could have been jarred down. Mr. R. had a very fair crop of peaches, and—forgetting that crops have often been grown before with very little care, and that others around him who did not bug so persistently had fruit also this year—is very sanguine of his new method, and too much inclined, perhaps, to attribute his crop solely to this remedy. Nevertheless, contrary to the impressions made by his published views, he was candid enough to admit that it might be found necessary to resort to the jarring process, after a certain season of the year; and indeed the number of stung peaches on the ground showed too plainly that there is no hope of EXTERMINATION by the chip plan alone. The soil around St. Joseph is, for the most part, a light sandy loam, never packing, and very easily kept in good cultivation. To this character of the soil must be attributed much of the success with the Ransom method; for I am satisfied after full experiment, that in the warmer climate and heavier soil of St. Louis it is of no practical use after the middle of May, or, at the farthest, after the first of June. The few specimens that I have captured by this method at St. Louis were found under small pieces of new shingle; and Mr. W. T. Durry, who has 2,300 trees in his orchard at St. Joe., also found this the best kind of trap. Mr. Ransom, however, prefers small pieces of oak-bark, which he places close around the tree, with the inner or concave side pressed to the ground. Stones do not answer well, and corn-cobs are objectionable because it requires so much time to discover and destroy the Curculios, which hide in their deep cavities.”

The best time of day to take them from under the chips is undoubtedly in the afternoon; but it must not be left too long, as they begin to leave and scatter over the trees as soon

as the sun approaches the horizon. The chips should be laid around the trees as soon as the frost is out of the ground, for more beetles will be caught under them during a few weeks thus early in the season than throughout the rest of the year.

KEEPING IT IN CHECK BY THE OFFER OF PREMIUMS.

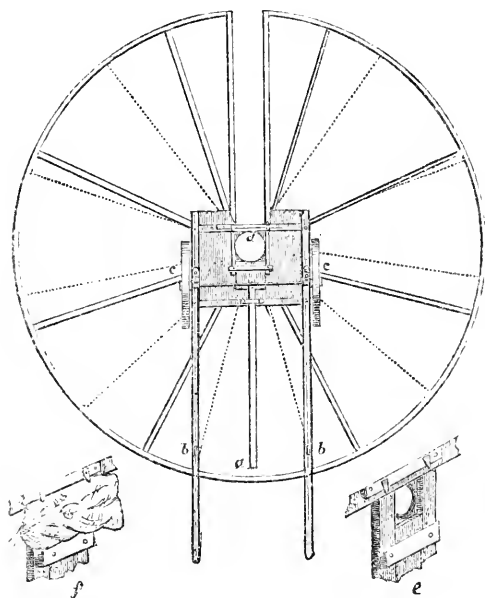
After visiting St. Joseph and vicinity, I passed into Ontario, where I found the trees overloaded with fine unblemished fruit. I found my friend, Mr. Wm. Saunders of London, also much occupied with, and interested in, the *Curculio* question. He was, in fact, carefully counting different lots of this insect which had been received from different parts of the Dominion; for be it known, that the enterprising Fruit-Growers' Association of Ontario, in its praiseworthy efforts to check the increase of the *Curculio*, offered *a cent per head* for every one which should be sent to our friend, who happens to be Secretary of that body. What would you think, gentlemen, if the Legislature of Illinois, or if this society should offer an equally liberal premium *per capita* for every little Turk captured? Wouldn't you set about capturing them in earnest, though! The Legislature might stand it, and I am not sure but that some such inducement, held out by the State to its fruit-growing citizens, would pay, and prove the most effective way of subduing the enemy. But the horticultural society that should undertake it, would have to be pretty liberally endowed. Just think of it; ye who catch from three to five thousand per day! The bugs would pay a good deal better than the peaches. However, very fortunately for the Ontario Fruit-Growers' Association, their good offer did not get noised abroad as much as it might have been, and the little Turk occurs in such comparatively small numbers, that up to the time I left, only 10,731 had been received.

JARRING BY MACHINERY.

Of course there is no more expeditious way of jarring down the *Curculio* than by the Hull *Curculio*-catcher. Yet I confess that after extensive operations in many different parts of

the country, I am forced to the conclusion that this machine does not give the satisfaction one could wish. In my paper last year I showed that where it was constantly used, the trees suffered serious injury from bruising, and it is a rather significant fact that in most orchards where it has been introduced some modification has soon followed, or else it has been entirely abandoned ; while in the East they still adhere to the improved stretchers and mallet. It seems to me that the machine, as made by your State Horticulturist two years ago, was not only too heavy and unwieldy, but incapable of giving the requisite sharp jarring rap to the branches of a large tree, without causing too much injury to the trunk, and that if a modification of it could be made to satisfy the peach-grower, there would soon be a greater demand for such a machine.

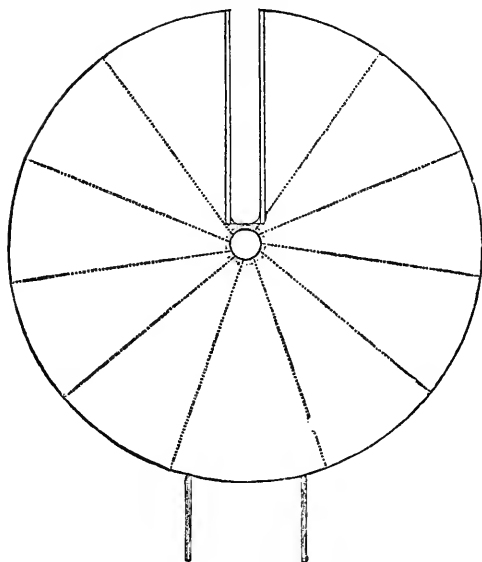
[FIGURE 2.]



Back view of Ward's Curculio-catcher.

As a step in the right direction, I will briefly describe a machine which I have herewith illustrated, and which I found in quite general use around St. Joseph and Benton Harbor, Mich. It was gotten up by L. M. Ward of the latter place, and proves, in the orchard, to have decided advantage over the Hull machine, of which it is a modification. It is a much lighter machine, and, as the diagrams indicate, instead of running on a single wheel, it is carried and balanced by two (Fig. 2, *cc*), and supported with legs on the handles (Fig. 2, *b b*), when not running. The Curculios and stung fruit are brushed through a hole in the center (Fig. 2, *d*), and as the operator passes from one tree to another, he closes this hole, to prevent the beetles from escaping, by means of a slide (Fig. 2, *a*) which he has under control. Bags previously prepared, by being fastened on a square piece of wood with a hole in the center corresponding to a hole in the side of the bag, are snugly buttoned below (Fig. 2, *e* and *f*) so as to secure everything that falls through from above; and when one bag, is full it is easily replaced by another, and its contents destroyed by scalding or otherwise, and emptied out. In most of the orchards where this machine was being used, the jarring was performed by a separate mallet, which is easily hung, as is also the brush, on the shafts, when the machine is being operated by one person; or, which I think a better way where help is not scarce, it can, with the brush, be carried by a second person (an intelligent boy will answer), who performs the jarring and brushing while the first person wheels the machine.

[FIGURE 8.]

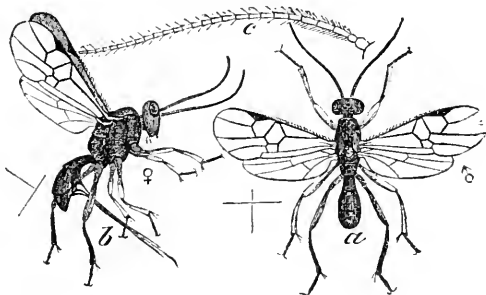


Front view of Ward's Curculio-catcher.

The machine is simple in construction and any one with ordinary mechanical ability can build it ; modifying, of course, the diameter of the wheels and the inclination of the sheet to suit the character of his trees, or of his ground. Mr. Ward has taken no patent out for it, and the machine is, therefore, public property. It has been argued in favor of the one-wheel machine, that it can be more easily run on rough ground, and more easily turned, which in a great measure is true ; but the Ward machine is so light that it can easily be tilted on one wheel in turning, and our Benton Harbor friends have so far found no difficulty in operating it. Either machine can be used with a bumper, or with a mallet, and there are certain rules which should be adopted in jarring for the Curculio, no matter whether a one-wheel or a two-wheel machine is used. These rules are : first, in jarring with a mallet it is best to prepare each tree by squarely sawing off some particular limb, or else the mallet must be well protected with rubber to prevent

bruising of the tender bark. The former custom is by far the best, as we are enabled to give the tree a sharp, vibrating rap with the bare, hard wood. Secondly, if the mallet is dispensed with and the tree is bumped with the machine,—a method which certainly has the advantage of expedition,—it will be found altogether more profitable to drive a shouldered spike in the trunk at the right distance from the ground, and the jarring can then always be done on this spike, without injury to the tree.

[FIGURE 4.]



Sigalphus Curculio Parasite: (a) male; (b) female; (c) antenna.

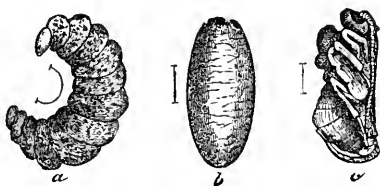
TWO TRUE PARASITES OF THE PLUM CURCULIO.

Just ten years ago, in his "Address on the Curculio," delivered at the annual meeting of the N. Y. State Agricultural Society, Dr. Fitch gave an account, accompanied with a figure, of a small Ichneumon-fly which he named *Sigalphus Curculionis*, and which he believed was parasitic on the Curculio. Before that time no parasite had ever been known to attack this pestilent little weevil, and even up to the present time it is currently believed that no such parasite exists, for unfortunately the evidence given by Dr. Fitch was not sufficient to satisfy some of our most eminent entomologists. These parasites were in fact received by him from Mr. D. W. Beadle of St. Catharines, C. W., who had bred them from Black-knot, from which he bred at the same time a certain number of Curculios; but as other worms besides those of the Curculio are likewise found in Black-knot, we had no absolute proof

that this fly was parasitic on the insect in question. Consequently we find that our late Walsh, in his report as Acting State Entomologist, rather ridicules the idea of its being a *Curculio* parasite, and endeavors to prove that it is parasitic instead on the larva of his Plum-moth (*Semasia prunivora*). But I have this year not only proved that poor Walsh was himself wrong in this particular inference, but that he was equally wrong in supposing his little Plum-moth, so-called, to be confined to plums; for I bred it from galls (*Quercus frondosa*, BASSETT); from haws, from crab apples, and abundantly from tame apples.

To be brief, Dr. Fitch's *Sigalphus* is a true parasite on the Plum *Curculio*, and I have bred hundreds of the flies from *Curculio* larvæ. The first bred specimens gave me much pleasure, for as soon as I saw they belonged to the same genus as Dr. Fitch's fly, I felt assured that another disputed question was settled. But, to make assurance doubly sure, I repeatedly half filled large jars with pure earth, finely sifted so that no living animal remained in it. Into these jars I placed *Curculio* larvæ from day to day as they issued from peaches that were thrown into another vessel, and in due time the parasitic flies began to issue from the ground along with the perfect *Curculios*. Nay, more than this, I soon learned to distinguish such *Curculio* larvæ as were parasitised, and after they had worried themselves under the ground—seldom more than half an inch—I would uncover them, and on several occasions had the satisfaction of watching the gnawing worm within reduce its victim until finally nothing was left of him. As soon as the *Curculio* larvæ is destroyed by the parasite, the latter (Fig.

[FIGURE 5.]



Sigalphus Curculio Parasite; (a) larva; (b) cocoon; (c) pupa.

5, *a*) incloses itself in a tough little yellowish cocoon of silk (Fig. 5, *b*), then gradually assumes the pupa state (Fig. 5, *c*), and at the end of about the same length of time that the *Curculio* requires to undergo *its* transformations and issue as a beetle, this, its deadly foe, gnaws a hole through its cocoon and issues to the light of day as a black four-winged fly (Fig. 4, *a*, male; *b*, female). In the vicinity of St. Louis, this fly was so common the past season that, after very careful estimates, I am satisfied three-fourths of all the more early developed *Curculio* larvæ were destroyed by it. On the 17th and 18th of April, in that locality, a severe frost killed the peach buds on all but a few of the young and most vigorous trees of Hale's Early and Crawford, so that instead of a large and abundant crop of peaches to depredate on, the little Turk had to concentrate its attacks on the few peaches that were left; and no one expected that any fruit would be saved. Yet the work of this little parasite was so effectual that, wherever fruit set, a fair crop was gathered even by those who made no effort at all to protect their trees!

While visiting Dr. Fitch last August, at his house in Salem, N. Y., I compared my bred specimens with his species, and found them identically the same; but I shall, in this reading, omit the description which follows and which may be read, by those interested, when this essay is published.

As Mr. Walsh bred this same parasite from the larvæ of his little Plum Moth, it doubtless attacks other soft-bodied larvæ and does not confine itself to the Plum *Curculio*. This is the more likely, as it would scarcely pass the winter in the fly state. The female, with that wonderful instinct which is exhibited in such a surpassing degree in the insect world, knows as well as we great Lords of Creation what the little crescent mark upon a peach or plum indicates; and can doubtless tell with more surety, though she never received a lesson from her parents, whether or not a *Curculio* larva is drilling its way through the fruit. When she has once ascertained the

presence of such a larva by aid of her antennæ—which she deftly applies to different parts of the fruit, and which doubtless possess some occult and delicate sense of perception which, with our comparative dull senses, we are unable to comprehend—then she pierces the fruit, and, with unerring precision, deposits a single egg in her victim, by means of her ovipositor.

Now there is, as I shall show in the description, a variety (*fusca*) of this parasite with the ovipositor nearly one-fifth of an inch long, but in the normal form the ovipositor is only twelve-hundredths of an inch long, and the *Curculio* larvæ must therefore be reached soon after it hatches, or while yet very young. Consequently, we find that the earliest *Curculio* larvæ, or those which hatch while the fruit is yet small, are the most subject to be parasitised, and while from larvæ obtained early in the season I bred more parasites than *Curculios*, this order of things was reversed a little later in the year. Some persons will no doubt wonder how such a large fly can be developed from a *Curculio* larvæ which is stung while so young; but we do not know how long the parasitic egg remains unhatched, and it must be remembered that it is a rule, wisely ordained and long known to exist in insect life, that the parasitic larvæ does not at first kill outright, but subsists, without retarding growth, upon the fatty portions of its victim, until its own growth is attained. Thus the first worm derives its nourishment from the juicy fruit, and grows on, regardless of the parasite which is consuming its adipose substance, until the latter is sufficiently developed, and the appointed time arrives for it to destroy its prey by attacking those parts more vital.

This parasite which I will now proceed to describe belongs to the second sub-family (*Braconides*) of the Ichneumon-flies (*Ichneumondiæ*), and the venation of its wings, and 3-jointed abdomen, place it in the genus *Sigalphus*. Westwood (Synopsis, p. 63) gives three cubital panes or areolets in the front wing as characteristic of the genus; but Brullé (p. 510) and,

as Mr. Cresson informs me, Westmael in his *Braconides de Belgique* give only two, which is the number in our insect.

SIGALPHUS CURCULIONIS, Fitch—*Imago*—(Fig. 4, *a* male; *b* female) *Head* black, sub-polished and sparsely covered on the face with short whitish hairs; ocelli touching each other; labrum and jaws brown; palpi pale yellow: antennæ (Fig. 4, *c*) 27-jointed, filiform, reaching, when turned back, to middle joint of abdomen or beyond, the bulbous and small second joint rufous and glabrous, the rest black or dark brown, though 3-10 in many specimens, are more or less tinged with rufous; 3-14 very gradually diminishing in size; 14-27 sub-equal. *Thorax* black, polished, the metathorax distinctly and broadly punctate, and the rest more or less distinctly punctate or rugose, with the sides sparsely pubescent. *Abdomen* pitchy-black, flattened, the dorsum convex, the venter concave, and the sides narrow-edged and slightly carinated; the three joints distinctly separated and of about equal length; the first joint having two dorsal longitudinal carinæ down the middle; all densely marked with very fine longitudinal impressed lines, and sparsely pubescent. (Dr. Fitch in his description published in the *Country Gentleman*, under date of September, 1859, state, that these lines leave "a smooth stripe along the middle of its second segment, and a large smooth space on the base of the third;" which is true of a few specimens, but not of the majority, in which the impressed lines generally cover the whole abdomen.) Ovipositor longer than abdomen, but when stretched in a line with it, projecting backwards about the same length beyond; rufous, with the sheaths black. *Legs* pale rufous with the upper part of hind tibiæ and tarsi, and sometimes the hind femora, dusky. *Wings* subhyaline and iridescent, the veins pale rufous, and the stigma black. Length female 0.15-0.16 inch, expanse 0.30; male differs only in his somewhat smaller size and in lacking the ovipositor. In many specimens the mesothorax and the eyes are more or less distinctly rufous.

Described from 50 females, 10 males bred June 23d-July 29th, 1870, from larvæ of *Conotrachelus nenuphar*, and two females obtained from Dr. Fitch.

Larva (Fig. 5, *a*)—white, with translucent yellowish mottlings.

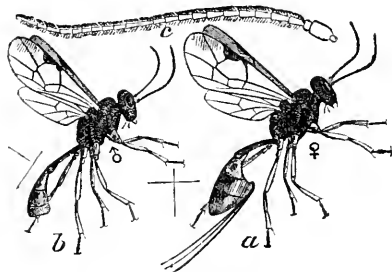
Pupa (Fig. 5, *c*)—female—0.17 inch long; whitish, the members all distinct, the antennæ touching hind tarsi, the ovipositor curved round behind, reaching and touching with its tip the third abdominal joint, which afterwards forms the apical joint of imago; five ventral joints, which in the imago become much absorbed and hidden, being strongly developed.

Cocoon (Fig. 5, *b*)—Composed of one layer of closely woven yellowish silk.

VARIETY RUFUS—Head, thorax and most of first abdominal joint entirely rufous, with the middle and hind tibiæ dusky, and the ovipositor three times as long as abdomen, and projecting more than twice its length beyond its tip.

Described from three females bred promiscuously with the others. This variety is slightly larger and differs so remarkably from the normal form that, were it not for the absolute correspondence in all the sculpturing of the thorax and body, and in the venation of the wings, it might be considered distinct. The greater length of the ovipositor is very characteristic and accompanies the other variations in all three of the specimens.

[FIGURE 6.]



Porizon Curculio Parasite: (a) female, (b) male, (c) antenna.

The other parasite works in very much the same manner, but instead of issuing the same summer as a fly, it remains in its somewhat tougher and more yellowish cocoon all through the fall and winter, and does not issue in the winged state till the following spring. This parasite was first discovered by Dr. Trimble, who sent me the cocoons from which I subsequently bred the perfect fly. It belongs to the first sub-family (*Ichneumonides*) of the Ichneumon-flies, and apparently to the genus *Porizon** of which it forms a new species. But I shall here also, in this reading, omit the technical description which follows, and will only state that it differs from the other species in its reddish-brown abdomen, as well as in form, as may be readily seen by referring to the figures (Fig. 6, a, female; b, male; c antenna).

* As I am informed by Mr. E. T. Cresson of Philadelphia, who pays especial attention to the classification of the Ichneumonidæ, it might more properly be referred to Holmgren's genus *Thersilochus*, which differs from *Porizon* in the greater distance between the antennæ at base, and in the venation of the wing.

PORIZON CONOTRACHELI, N. SP. *Head* pitchy-black, opaque, the ocelli triangularly placed and close together; eyes oval, polished, and black; face covered with a silvery-white pubescence; labrum rufous, with yellowish hairs; mandibles and palpi pale yellowish-brown; antennae inserted in depressions between the eyes, reaching to metathorax when turned back, filiform, 24-jointed; black with basal joints, 6-1 becoming more and more rufous, the bulbous always distinctly rufous; bulbous rather longer and twice as thick as joint 3; joint 2 about one-third as long. *Thorax* pitchy-black, opaque, the sides slightly pubescent with whitish hairs, the mesothorax rounded and bulging anteriorly, the scutellum slightly excavated and sharply defined by a carina each side; metathorax with the elevated lines well defined and running parallel and close together from scutellum to about one-fourth their length, then suddenly diverging and each forking about the middle. *Abdomen* glabrous, polished, very slender at base, gradually broader and much compressed from the sides at the apex, which is truncated; peduncle uniform in diameter and as long as joints 2 and 3 together; joints 2-5 subequal in length; color rufous with the peduncle wholly, dorsum of joint 2, a lateral shade on joint 3, and more or less of the two apical joints superiorly, especially at their anterior edges, black; venter more yellowish; ovipositor about as long as abdomen, porrect when in use, curved upwards when at rest, rufous, with the sheaths longer and black. *Legs*, including trochanters and coxae, uniformly pale yellowish-brown, with the tips of tarsi dusky. *Wings* subhyaline and iridescent, with veins and stigma dark brown, the stigma quite large, and the two discoidal cells subequal and, as usual in this genus, joining end to end, but with the upper veins which separate them from the radial cell, slightly elbowed instead of being straight, thus giving the radial cell a quadrangular rather than a triangular appearance. Male differs from female only in his somewhat smaller size and unarmed abdomen. Expanse female 0.32 inch, length of body exclusive of ovipositor 0.22; expanse male 0.28, length 0.18.

Described from 3 females, 1 male bred May 26th-28th, 1870, from cocoons received from Dr. I. P. Trimble, and 1 female subsequently received from the same gentleman,—all obtained from larvae of *Conotrachelus nenuphar*.

“But of what use are these parasites?” say you! Well, they cannot, it is true, be turned to very great practical account, because they are not sufficiently under our control; but it is a source of great satisfaction to those who have been looking for many years for some natural aid to help them in the artificial warfare waged against the *Cureulio*, to know that besides its

several cannibal foes, there are at least two true parasites which attack it. Indeed, with the knowledge of the *Curculio*-enemies figured and described two years ago in the *American Entomologist*, and of the egg-destroying *Thrips* which I described to you last year, and these two parasites, the grower of our luscious stone-fruits may with good reason begin to hope for better days, for the prospect brightens. There is no philosophy in the statement of Mr. Ransom,* that we can never hope for assistance from parasites, because, as he confidently expresses it, "there are none at present but what have always existed!" Such argument will do for the believers in the old-school doctrine, that everything was created just as we find it; but not for those who rightly comprehend the Darwinian hypothesis of development, and who believe that life is slowly undergoing change and modification to-day, just as it ever has since it had an existence on this earth. For my own part, nothing has ever appeared more absurd than the direct creation of something out of nothing, and I would as soon believe that we all dropped full grown from the clouds, just as we are here to-day,—instead of being brought into the world by natural means and gradually developing into manhood and womanhood,—or that we have the same habits as our barbarous ancestors had, as to believe that the animal life about us is now as it was in the beginning! Therefore, though these *Curculio* parasites may have existed in this country long ere the white man first beheld its shores, yet they may only have acquired the habit of preying upon the *Curculio* within the last comparatively few years. Moreover, much benefit may be derived from their artificial propagation and dissemination, and—utopian as the scheme may appear to you—I intend next year, *Deo volente*, to breed enough of the first mentioned species to send at least a dozen to every county seat in Missouri, and have them liberated in some one's peach orchard. By this means I hope to spread them all over the State, and if in

* *Prairie Farmer*, June 4th, 1870.

future years you Suckers should find that our peach growers are, by its aid, able to get a fair crop of peaches every year, while yours are constantly destroyed by Mrs. Turk, our State Government may condescend to send across the Mississippi a few thousand pairs of the little *Sigalphus* for the trifling consideration of \$1.00 per pair! If the money derived from this new branch of industry should be safely set aside in the vaults at Jefferson City, until sufficient has accumulated to erect in St. Louis a fire-proof building for a museum of Natural History, and Agricultural and Geological rooms. there would be at least as much prospect of getting such a building as there seems to be now!

THE APPLE CURCULIO.

(*Anthonomus quadrigibbus*, SAY.)

“Prove all things; hold fast that which is good!”

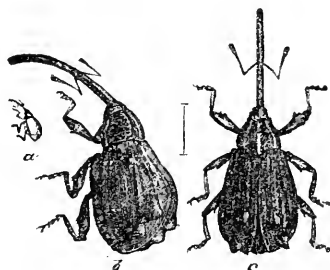
This injunction of St. Paul applies with just as much force to us to-day, as it did in centuries past to the Thessalonians. In what has been said above about the Plum Curculio, we have had abundant opportunity of testing the soundness of the old proverb; and in ascertaining the history of the Apple Curculio, which I am about to give you, it was very necessary to bear the advice in mind. It often takes years to undo the assertions of men who are in the habit of talking-glibly of that which they really know nothing about, and I ought to comment severely on what has been said about this insect; but I refrain from doing so, in this case, lest it be said that my words are prompted from personal considerations. I shall therefore content myself with a plain narrative of this insect's habits.

First, then, let us explain the differences between the perfect states of this insect and the Plum Curculio, that any one of you may distinguish between them.

The snout of the Plum Curculio hangs down like the trunk of an elephant; it is short, stout, and does not admit of being

stretched out horizontally forwards; and as may be seen by referring to the figure (Fig. 1, *c*) is scarcely as long as the head and thorax together, and can be folded back between the legs, where there is a groove to receive it. The Plum Curculio is broadest across the shoulders and narrows behind, and moreover, the black sealing-wax-like, knife-edged elevations on the back, with the pale band behind them, characterize it at once from all our other fruit-boring snout-beetles.

[FIGURE 7.]



Apple Curculio—(a) natural size; (b) side view; (c) back view.

The Apple, or Four-humped Curculio (Fig. 7) is a smaller insect, with a snout that sticks out more or less horizontally, and cannot be folded under, and which in the male is about half as long, and in the female is fully as long as the whole body. This insect has narrow shoulders and broadens behind, where it is furnished with four very conspicuous humps, from which it takes its name. It has neither the polished black elevations nor the pale band of the Plum Curculio. In short, it differs generally, and never attacks stone fruit.

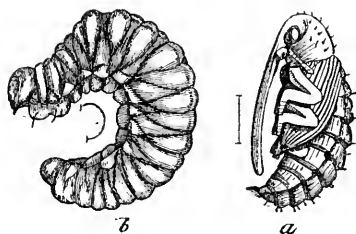
The size varies, as you will see from the specimens in the lecturing-box, from less than 1-20th to nearly 1-12th of an inch, but the colors are quite uniform, the body being ferruginous or rusty-brown, often with the thorax and anterior third of the wing-covers ash-gray,—the thorax having three more or less distinct pale lines.

ITS NATURAL HISTORY.

This beetle, like the Plum-weevil, is a native American insect, and has from time immemorial fed on, and bred in, our wild crabs. It eventually learned to like our cultivated apples and pears, and is also found on quinces. At present it does considerable damage to the crop in some localities, though it yet prefers the wild to the cultivated fruit. Like the Plum-weevil also, it is single-brooded, and winters over in the beetle state, though I was led to believe differently a year ago. With its long thin snout it drills holes into the fruit, much resembling the puncture of a hot needle, the hole being round, with a more or less intense black annulation, and an ash-gray center. Those holes made for food are about one-tenth of an inch deep, and generally scooped out broadly at the bottom, in the shape of a gourd. Those which the female makes for her eggs are scooped out still more broadly, and the egg at the bottom is often found larger than the puncture at the orifice,—thus indicating that it swells from absorption, by a sort of endosmosis, of nutritive fluid from the surrounding fruit, just as the eggs of many saw-flies and of some other snout-beetles are known to do.

The egg is fully 0.04 of an inch long, nearly oval, not quite three times as long as wide, and of a yellowish color, with one end dark and empty when the embryo larva is well formed. The egg-shell is so very fine that the larva seems to gradually develop from it instead of crawling out of it; and by taking a matured egg and gently rolling it between the thumb and finger, the young larva presents itself, and at this early age its two little light brown mandibles show distinctly on the head. As soon as this larva hatches, it generally goes right to the heart of the fruit and it feeds there around the core, producing much rust-red excrement, and acquiring a tint of the same color. It feeds for nearly a month, and when full grown presents the appearance of Figure 8, *b*.

[FIGURE 8.]



Apple Curculio—(a) pupa; (b) larva.

It differs so remarkably from that of the Plum Curculio that the two insects can be distinguished at a glance, even in this masked form. It is softer, the chitinous covering being thinner and much whiter. It cannot stretch straight and travel fast, as can that of the Plum Curculio, but curls round with an arched back, joints 4-7 being larger than the preceding. It is more crinkled, each joint being divided into three principal folds, much as in the common White Grub. The space between the folds is frequently bluish-black, and there is a very distinct, continuous, vascular, dorsal line of a bluish color. It has no bristles like *nemophar* except a few weak ones on the first joint, arising from some ventral tubercles which remind one of feet. The head is yellowish-brown, with the jaws somewhat darker, and the breathing pores, except that in fold of first joint, are not easily seen.

IT TRANSFORMS IN THE FRUIT.

The fruit of the wild crab containing this larva never falls, and the fruit of our cultivated apples seldom; and in this respect the effect of its work differs remarkably from that of the Plum Curculio, or even of the Codling Moth. Why such is the case it would be difficult to explain. It is one of those incomprehensible facts which at every turn confront the student of Nature's works. We might with equal reason ask why it is that of the two stone fruits, the plum and the cherry, the larger falls and perishes and the smaller hangs on and lives, when infested with the Plum Curculio; and of the two

pomaceous fruits, the apple and the haw, the larger likewise falls and perishes and the smaller hangs on and lives, when infested with similar larvæ. Most persons would naturally infer that the larger instead of the smaller fruits would best resist the injurious gnawings of the worm within; and though we may explain away the paradox by supposing that the longer stem of the smaller fruits prevents the injury from reaching its juncture with the branch, so readily as it does through the shorter stem of the larger fruits; or that the greater weight of the larger fruit causes it to fall so readily; yet this is only assuming, and I doubt whether the vegetable pathologist will ever be able to show the peculiarities of the fruits which cause the different effects.

The larva of the Apple Curculio has no legs, and is so hump-backed that it cannot stretch out, and would cut a sorry figure in attempting to descend the tree. Therefore, as the fruit containing it mostly hangs on the tree, the insect is effectually imprisoned. But Nature's ways are always ways of wisdom, and her resources are inexhaustible! Consequently we find that instead of having to go under ground to transform, as does the Plum Curculio, the normal habit of our Apple Curculio is to transform within the fruit. The larva after becoming full fed settles down in a neat cavity, and soon throws off its skin and assumes the pupa state, when it appears as at Figure 8, *a*. After remaining in this state from two to three weeks, it undergoes another moult, and the perfect beetle state is assumed. We thus see that the Apple Curculio is cradled in the fruit in which it was born, till it is a perfect beetle, fully fledged, and ready to carry out the different functions and objects of its life. In other words, it never leaves the fruit, after hatching, till it has become a perfect beetle. This fact I have fully tested by breeding a number myself, both from infested crabs which I collected, and from cultivated apples, also infested, that were kindly forwarded to me by Mr. J. B. Miller of Anna, Ill. I learn also from Mr.

Geo. Parmelee of Old Mission, Mich., that he has satisfied himself of the same trait in the natural history of this insect; and I fully convinced myself that such was the normal habit, by repeatedly removing the full grown larva from the fruit and placing it on the surface of the ground, when, in every instance, it would make no attempt to bury itself, but would always transform on the surface.

THE AMOUNT OF DAMAGE IT DOES.

The observations that I have been able to make on this insect's work in our cultivated orchards are limited, but I think that it attacks with equal relish both summer and winter apples. Whenever a beetle has perfected in the fruit, it cuts quite a large hole for its escape, and these holes are sufficiently characteristic to enable one who has paid attention to the matter to tell with tolerable certainty whether an apple has been infested with the Apple-worm, Plum Curculio, or Apple Curculio,—even after the depredator has left.

In the southern portion of Illinois and in some parts of Missouri, this insect is very abundant and does much damage to the apple crop; it occurs in greater or less numbers in most States of the Union; but in other localities again its work is scarcely ever seen, and I am satisfied that the damage it does has been much overrated. We can only judge of the future by the past, and though we may expect this insect to increase somewhat with the increase of our orchards, it is folly to suppose that it can go on increasing in geometrical ratio; and the pretty mathematical calculations which are intended to alarm the cultivator at the gloomy prospects of the future, are never made by those who understand the complicated net-work in which every animal organism is entangled, or who rightly understand the numerous influences at work to keep each species within due bounds. Such figures look well on paper but, like air-castles, there is nothing real about them.

Our apples suffer much more, in many localities, from the gougings of the perfect beetle and the burrowings of the larva

of the Plum Curculio, than they do from the work of this Apple Curculio; and this was so much the case in my own locality the past summer, that I found a dozen larvæ of the former in apples, where I found one of the latter.

[At the meeting of the Society, Mr. E. Daggy of Tuscola, Ills., had on exhibition some pears that were very much deformed and gnarled. After the reading of this paper he informed me that this injury had been caused by the Apple Curculio, which he recognized from my figure and from the specimens in the lecturing box. Upon examining the pears I found a little dark circular spot, which indicated distinctly where the snout of the beetle had been inserted. This spot was the center of a hard and irregular but generally rounded knot or swelling, which was sunk in a depression of the softer parts of the pear, thus indicating that the growth, by some property of the puncture, was checked and hardened, while the other parts went on growing and swelling. Some of the fruit was so badly disfigured that it could no longer be recognized, and Mr. Daggy informed me that his Vicar of Winkfield, and "Sugar Pear" were most affected in this way, and that his Duchesse pears were unblemished.]

THE SEASON OF THE YEAR DURING WHICH IT WORKS.

The beetles come from their winter quarters and begin to work on the fruit about the same time as does the Plum Curculio,—if anything, a little later. They have generally got fully to work, and larvæ may be found already hatched, by the first of June, and they may be found in the fruit in one stage or another all along through the months of June and July, and the greater part of August.

REMEDIES AND PREVENTIVE MEASURES.

Notwithstanding we have had reports published, in the columns of our agricultural papers, of the relative number of Apple and of Plum Curculios captured from peach trees by jarring with the Curculio-catcher, I am fully convinced that

such reports were not based on facts, and that we may never expect to subdue this insect by the jarring process. It is not as timid or as much inclined to drop as the Plum Curculio, and, though it can occasionally be brought down, it generally remains defiantly on the fruit or on the bough, through the gentlest as well as the severest jarring of the tree. Indeed, its habit of transforming in the fruit, places it in a great measure beyond our control, and I fear that this is one of the few insects with which we can do but little by artificial means. But we have only just commenced to understand this foe, and there is much yet to learn about it. I sincerely hope that the few facts which have been here given, will increase your interest in this insect, and enable you to carry on future observations and experiments with a better understanding; so that they will at last result in making us masters of this rather difficult situation. Mr. H. Lewelling of High Hill, Montgomery county, Mo., who has had much of his fruit injured by this insect, informs me that Tallman's Sweet is preferred by it to all other varieties, and our observations should, as much as possible, tend in the direction of deciding which varieties are most subject to, and which most exempt from its attacks; and which varieties fall most readily when infested by it. For it is obvious that with our present knowledge, the only real remedy which yet exists, is the destruction of the infested fruit, whether upon or off the tree; and it may turn out that although we cannot jar down the beetles we can jar down much of the infested fruit, which would, without jarring, remain on the trees.

ANTHONOMUS QUADRIGIBBUS, Say—*Larva* (Fig. 8, *b*)—Average dorsal length when full grown 0.45 inch; soft and white, with a very few sparse soft hairs; arched and wrinkled Lamellicorn-fashion, the space between the wrinkles, and a distinct dorsal vascular line, bluish-black. Head free and almost perpendicular, yellowish-brown with the mandibles darker. A pair of polished ventral tubercles on each of the three thoracic joints, and each bearing a distinct bristle.

Pupa (Fig. 8, *a*)—Average length 0.40 inch. Whitish; the snout of

female reaching beyond the tip of wing-cases; that of male not much beyond the elbow of middle femora and tibiae. Thorax with a few short stiff hairs springing from slight conical elevations. Wing-cases showing the striæ and humps of future beetle, the tip of the upper case usually terminating in a thorn. The nine abdominal joints deeply and distinctly separated, the first showing a rounded scutellar tubercle; the sides angular, conically ridged, and armed on each joint with two brown thorns or bristles, which become stouter towards apex; a transverse dorsal row of about eight similar bristles on the posterior sub-margin of each joint, also becoming larger towards apex; terminal sub-segment ending in ONE stout, slightly curved thorn.

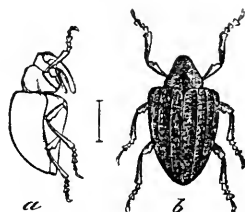
THE QUINCE CURCULIO.

(*Conotrachelus crataegi*, WALSH.)

HOW IT DIFFERS FROM THE OTHERS.

This insect has been called the Quince Curculio by Dr. Trimble, and, though it breeds in other fruits, the name is a good one as it will enable us to distinguish it at once from our other fruit snout-beetles. I have had the beetle in my cabinet for several years, but knew nothing of its larval history until a year ago last fall. It breeds very abundantly in our common haws, and I raised a number of them the present season from the fruit of the Pear or Black Thorn (*Crataegus tomentosa*), obtained from Mr. Walsh.

[FIGURE 9.]



Quince Curculio—(a) side view: (b) back view.

Though belonging to the same genus as our Plum Curculio, and having very much the same form, as may be seen by referring to the figure (Figure 9), yet it differs remarkably in its habits from both of the preceding weevils. It is, like

them, an indigenous species, and its original fruit was evidently the wild Haw, which in the West it yet seems to prefer to the cultivated fruits. But in the East it has become very injurious to the Quince and, as we might naturally expect, also attacks the Pear, and especially the Lawrence and other late varieties. In September, 1868, I received specimens from W. W. Swett of Hightstown, N. J., with the statement that they were found on pears, and Dr. Trimble at a late meeting of the New York Farmers' Club (Oct. 22, '70), gave the following account of its injuries in New Jersey the present year:

"Yesterday five or six hundred were taken from the bottoms of two barrels of quinces, although those quinces had only been gathered four days before. A friend of mine has a quince orchard of 286 trees. These trees this season should average seventy or eighty quinces to a tree, making more than twenty thousand. Upon a most careful search I was unable to find one specimen perfect, or clear of one or more blemishes caused by the puncture of this insect. Frequently four, five, or six grubs will be found in a single quince. Mr. Goldsmith, the owner, keeps this orchard in first-rate order; he has faithfully kept out the borers, so fatal to the quince trees; has fertilized very freely, and the cultivation is perfect. He told me yesterday, that his crop this year is thirty barrels, which will yield him about \$125. Had this insect let him alone, he should have had at least 100 barrels, worth from \$800 to \$1,000. Many of his later pears, including the Seckel and Lawrence, have suffered greatly, though not to the same extent as his quinces. A few days ago he emptied a barrel of cullings, chiefly Lawrence pears, and in and near the bottom of that barrel were found at least 400 of these grubs. A month ago I visited the orchards attached to one of the best nurseries in Pennsylvania, and I found the sad evidence of the presence of this enemy. Even the Seckel pears, though very abundant, were almost worthless; later varieties still worse. Mr. Fuller tells me that he has seen this season, in Western New York,

the same condition of fruit at a well known nursery; even the Duchesse pears almost totally destroyed. This fruit enemy seems yet confined to localities, but is spreading rapidly."

This beetle was first briefly described by Mr. Walsh in a note in the *Prairie Farmer* for July 18th, 1863, p. 37, from specimens found by him on the hawthorn, but until I bred it this spring nothing was known of its larval history. It is a somewhat larger insect than the Plum Curculio, has a comparatively longer snout, and is very broad shouldered; thus tapering just the opposite way to the Apple Curculio. Its general color is a tolerably uniform ash-gray, mottled more or less with ochre-yellow, dusky and whitish, and it has a dusky somewhat triangular spot at the base of the thorax above, and seven distinct narrow longitudinal elevations on the wing-covers, with two rows of punctures between each.

This beetle differs further from the others, in the fact that it does not appear, even in the latitude of St. Louis, till about the first of June, and I have had its larvæ of the previous year in the ground in May, when the newly hatched larvæ of the Plum Curculio were already working destruction in the fruit. In some of the more Northern States it would not appear till the middle of July.

ITS TRANSFORMATIONS AND HABITS.

This snout-beetle does not make a crescent like the Plum Curculio; but, like the Apple Curculio, makes a direct puncture for the reception of its egg, the hole being somewhat larger than that of the latter, and the bottom of the cavity similarly enlarged and gnawed, so as to form a neat bed for the egg. The egg is very similar to that of the Plum Curculio, and hatches in a few days after being deposited. In all probability it also swells and enlarges somewhat before hatching. The larva works for the most part near the surface of the fruit and does not enter to the heart. It is of the general form of that of the Plum Curculio, and differs principally in

being somewhat larger, more opaque-white, and in having a narrow dusky dorsal line and a distinct lateral tubercle on each joint. When full grown, which is in a month or more from the time of hatching, it leaves the fruit through a smooth cylindrical hole and burrows two or three inches into the ground. Here, singularly enough, it remains all through the fall, winter, and spring months without changing,—no matter whether it left the fruit as early as the first of August or as late as the first of October. This is the peculiar feature of the insect, namely, that it invariably passes the winter in the larva state, and does not even assume the pupa state till the forepart of May, or a few days before issuing as a beetle. In this respect it resembles the nut-weevils which infest our hickory-nuts, hazel-nuts, and acorns. In higher latitudes than that of St. Louis, there is evidence that some of the late-hatched larvæ do not leave the haws they infest till frost overtakes them, but pass the winter within the fruit as it lies on the frozen ground. The pupa differs only from that of the Plum Curculio in the greater length of the proboscis.

It will be remembered, perhaps, by many members of this Society, and I have before referred to the fact, that Dr. Fitch supposed the Plum Curculio was two-brooded, and those who have read his "Address" on this insect will readily perceive that he based this opinion on finding what he took to be its larvæ in the tender bark of a pear twig late in the fall, and on finding what he similarly mistook for such larvæ in haws in winter. Of course we know positively now that the Plum Curculio does not so breed in pear twigs, and it is very evident that what Dr. Fitch took to be Plum Curculio larvæ in such a twig, were the young of some other insect, or perhaps even the eggs of some leaf-hopper (*Tettigonia*) which are generally placed in the position described by him. But though this first error of Dr. Fitch's has been explained away, the second never has till now, when we may assume, with great reason, that the larvæ which misled the Doctor, and which were found

in haws in winter time, were in reality the larvæ of our Quince Curculio. How easily are fallacies exploded and errors corrected, even years after they are committed, by a few well tested facts!

The two former Curculios which we have been considering have a beetle existence of between nine and ten months, during most of which time, or as long as the weather is sufficiently mild, they feed in the manner described. The present species has a beetle existence of not more than two months, and, as though aware of the short term allotted to it for enjoyment, it endeavors to make the best use of its time. Consequently, we find it more ravenous than either of the other species, and it is really astonishing how much this insect eats. It excavates immense holes for food, often burying itself in them completely; and I have known apples furnished to these beetles in confinement, to have their substance so completely devoured that nothing but the rind was left. Two years ago this fall there was scarcely a quince that came into the St. Louis market, that was not marred by numbers of large gougings, and though I was then inclined to attribute such holes to the gnawings of grasshoppers, I feel pretty well convinced at present, that the work might with more justice have been attributed to the Quince Curculio.

The question will naturally arise, since this insect breeds in the haw, the quince, and the pear, whether it will also breed in the closely allied apple? So far as my experiments go, they indicate clearly that it will not; for although the beetle will eat and greatly disfigure apples, when no other nourishment is at hand, yet a number which I confined to a large branch of an apple tree on the 14th of June last, absolutely refused to deposit eggs, and died three weeks afterwards.

REMEDIES.

Very fortunately this insects drops as readily when alarmed as does the Plum Curculio, and the jarring process will be found just as effectual in catching it, with the additional

advantage that the jarring need only be carried on for about ten weeks of the year, namely, from about the first of June to the middle of August in this latitude. Moreover, in accordance with its late appearance we find that, according to Dr. Trimble, whenever it attacks pears, it prefers the late-ripening varieties. Again, it is, like the Plum Curculio, nocturnal in its habits, and secretive during the day; so that the Ransom process will undoubtedly prove effectual with it if used at the right season. All fruit that falls should be destroyed, and as we know that the larva hibernates in the ground, many of them will be injured and destroyed by late stirring of the soil.

CONOTRACHELUS CRATÆGI, Walsh—*Larva*—Average length when full grown, 0.32 inch; $4\frac{1}{2}$ times as long as wide, and straight. Opaque whitish, with a narrow dusky dorsal line, generally obsolete on thorax, and a few very short hairs. Distinct lateral tubercles on all the joints. Head rufous with mandibles black, except at base, and distinctly two-toothed at tip.

Pupa—Average length 0.28 inch. Snout reaching a little beyond elbow of middle tibiæ and tarsi, with two stout rufous thorns near the origin of antennæ, two more at base, and sometimes others more toward the tip. Head and thorax also armed with such thorns, and also two to each elbow of the femora and tibiæ. Wing cases with rows of short rufous bristles along the elevations between the striæ. Abdomen cylindrical, the basal joint with a central scutellar bristleless tubercle and two others, one each side of it, each bearing a bristle; the other joints conically tubercled laterally, each tubercle bearing a stout bristle, and each joint bearing dorsally about four other bristles on its posterior sub-margin. Terminal sub-segment squarely cut off and bearing two stout inwardly-curved brown thorns.

THE PLUM GOUGER.

(Anthonomus prunicida, WALSH.)

ITS CHARACTER, DISTRIBUTION, AND FOOD.

[FIGURE 10.]



The Plum Gouger.

This name was given by Mr. Walsh to another indigenous weevil which is represented enlarged in the accompanying illustration (Fig. 10). It is easily distinguished from either of the preceding weevils—as you will see at a glance by referring to the figures and to the specimens in the lecture-box—by its ochre-yellow thorax and legs and its darker wing-covers, which are dun-colored, or brown with a leaden-gray tint, and have no humps at all. Its snout is not much longer than the thorax, but as in the Apple Curculio, projects forwards, or downwards, but can not be bent under as in the Plum Curculio. This insect was first described in the *Prairie Farmer* for June 13th, 1863, and the description was afterwards republished in the Proceedings of the Boston Society of Natural History for February, 1864.

Mr. Walsh gave such a good account of it in his Report as Acting State Entomologist that it is unnecessary for me to go into detail, and I will therefore only briefly allude to those traits in its history which are well established.

The Plum Gouger seems to be unknown in the Eastern States, but is very generally distributed throughout the valley of the Mississippi. As a rule it is much less common and does much less injury than the little Turk, though in some few districts it is found equally abundant, and I received spec-

imens on the first of June last, from my esteemed correspondent, Mr. Huron Burt of Williamsburg, Callaway Co., Mo., with the statement that it was doing great damage to the plums in that locality, though the little Turk was scarcely met with. There is a plum known there as "Missouri Nonsuch" which, though said to be Curculio proof, is worked upon very badly by the Gouger.

The Plum Gouger is often found on wild crab trees, and may, like the Plum Curculio, occasionally deposit and breed in pip fruit; but it is partial to smooth-skinned stone fruit, such as prunes, plums, and nectarines, and it does not even seem to relish the rougher-skinned peach.

OFTEN MISTAKEN FOR THE PLUM CURCULIO.

It has often been confounded with the Plum Curculio, and was once supposed by our friend, L. C. Francis of Springfield, Ills., to be the male of that species. We all have a right to suppose what we please, and as long as our suppositions are not thrust on the public for ascertained facts, they can do no possible harm. But Mr. J. P. Williamson of Des Moines county, Iowa, is not satisfied with supposing this or some other straight-snouted weevil, to be the female of the Plum Curculio, but, in a last summer's issue of the *Prairie Farmer*, not only emphatically speaks of it as such, but, finding that these supposed females frequent the trees two weeks earlier than the males (?), he concludes, for some unexplained reason, that the sole object of visiting the fruit is for the deposition of eggs; and straightway hatches the theory that the Plum Curculio can do no harm till the males appear! Consequently, instead of jarring our trees as long as fruit remains on them, we are informed by Mr. Williamson that it is only necessary to jar them about six weeks.

And thus it always is with men who do not sufficiently understand the absolute importance of care and caution in reading Nature's secrets: from supposition to assumption;

from assumption to theory; from theory to advice, which—it is unnecessary here to say—is of a most pernicious character.

ITS TIME OF APPEARANCE.

This beetle appears in the spring about the same time as the Plum Curculio, but as no eggs are deposited after the stone of the fruit becomes hard, and as its larva requires a longer period to mature than that of the latter, its time of depositing is shorter, and the old beetles generally die off and disappear before the new ones eat their way out of the fruit, which they do during August, September, and October, according to the latitude.

ITS NATURAL HISTORY.

Though we have no absolute proof of the fact, analogy would lead us to believe, and in my own mind there is no doubt, that this insect passes the winter in the beetle state, and that it is, like the other species, single-brooded. Both sexes bore cylindrical holes in the fruit for food, and these holes are of the exact diameter of the snout, and consequently somewhat larger than those of the Apple Curculio. These holes are broadened at the bottom, or gouged out in the shape of a gourd; and especially is this the case with those intended by the female for the reception of an egg. The egg, in this case also, enlarges from endosmosis, and it is probable that all weevils that make a puncture for the reception of their eggs, gnaw and enlarge the bottom, not only to give the egg room to swell, but to deaden the surrounding fruit, and prevent its crushing such egg,—the same object being attained by the deadened flap made by the crescent of the little Turk. Wherever this insect abounds, plums will be found covered with its holes, the great majority of them, however, made for feeding purposes. The gum exudes from each puncture, and the fruit either drops or becomes knotty and worthless.

The young larva which hatches from the egg, instead of rioting in the flesh of the plum, or remaining around the

outside of the kernel, makes an almost straight course for that kernel, through the yet soft shell of which it penetrates. Here it remains until it has become full-fed, when by a wise instinct it cuts a round hole through the now hard stone, and retires inside again to change to the pupa and finally to the beetle state. When once the several parts of the beetle are sufficiently hard and strong, it ventures through the hole which it had already providently prepared for exit with its stronger larval jaws, and then easily bores its way through the flesh and escapes.

REMEDIES.

This Plum Gouger is about as hard to deal with as the Apple Curculio. It drops almost as reluctantly, and we therefore cannot do much by the jarring process to diminish its numbers. Moreover it takes wing much more readily than the other weevils we have mentioned; and though fruit that is badly punctured for food, often falls prematurely to the ground, yet, according to Mr. Walsh, that infested with the larva generally hangs on the tree until the stone is hard and premature ripening sets in. In all probability the stunted and prematurely ripened fruit containing this insect will jar down much more readily than the healthy fruit, but I have so far had no opportunity of making any practical observations myself, and must conclude by hoping that our plum-growing members will make the proper experiments and give us the results.

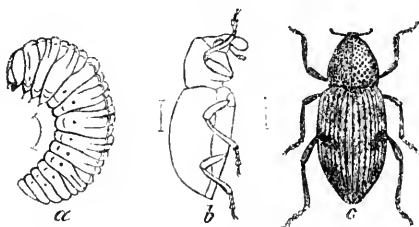
THE STRAWBERRY CROWN BORER.

(*Analcis fragariæ* N. sp.)

This is another indigenous insect, which seems to be confined to our Mississippi Valley, for I have heard no complaints in any of the Atlantic States, of injuries that could be attributed to this weevil. In the *Maine Farmer* for July 25th,

1867, we find a brief reference, made by Mr. G. E. Brackett of Belfast, Me., in answer to a certain "E. B.," of a "worm that eats into the crown of the plant and kills it." The worm referred to was, in all probability, the Crown Borer under consideration, but as no postoffice address of the questioner is given, the paragraph might just as well never have been written, for any light that it throws on the distribution of the insect. However, no such insect has ever been mentioned by our Eastern writers on the Strawberry, and we must necessarily conclude that it does not exist in the Atlantic States.

[FIGURE 11.]



Strawberry Crown Borer—(a) larva; (b) beetle, side view; (c) same, back view.

This insect has done considerable damage to the strawberry crop in the Southern portion of your own State, especially along the line of the Illinois Central R. R.; and I have seen evidence of its work in St. Louis county, Mo. At the meeting of the Southern Illinois Fruit Growers' Association, held at South Pass in November, 1867, several complaints were made by parties from Anna and Makanda, of a white worm which worked in the roots of their strawberries; and in 1868, the greater portion of the plants of a ten-acre field at Anna, belonging to Mr. Parker Earle, was destroyed by it.

In the fall of 1869 I had some correspondence with Mr. Walsh on this insect, and learned that he had succeeded in breeding it to the perfect state; and had it not been for his untimely death, its history would no doubt have been published a year ago. Through the kindness of Jos. M. Wilson of Sterling, Whiteside county, and of J. B. Miller of Anna,

Union county, I received during the past year specimens of the larvæ, from which I succeeded in rearing the perfect beetle. It is therefore by the aid of these gentlemen, and especially from the experience of Mr. Miller, that I am enabled to give you the above illustrations (Fig. 11) of the Strawberry Crown Borer, and the following necessarily imperfect account of its mode of working. I give them in the hope that they will prompt further investigation, and serve as a clue to enable our excellent friend Dr. Le Baron to increase our knowledge of this pest; for there is much yet to learn of its habits, and consequently of the best means of fighting it.

From the middle of June to the middle of July in Southern Illinois, and later further north, the larva hatches from an egg which, in all probability, is deposited in the crown of the plant, and it immediately commences to bore its way downwards, into the pith. Here it remains till it has acquired its full size, working in the thick bulbous root and often eating through the more woody portions, so that when frost sets in, the plant easily breaks off and is heaved out of the ground. When full grown it presents the appearance of Figure 11, *a*, being a white grub with arched back and tawny-yellow head, and measuring about 1-5th of an inch when stretched out. It undergoes its transformations to the pupa and perfect beetle states within the root, and the latter makes its appearance above ground during the month of August.

The beetle (Fig. 11, *b* side view; *c* back view) is about 1-6th of an inch in length, of a chestnut-brown color, and marked and punctured as in the figure.

From analogy we may infer that the beetle feeds on the leaves of the strawberry, for it is a very general rule with snout-beetles, that the perfect insects feed on the leaves of such plants as they infest in the larva state. But whether it lives on through the winter as a beetle and does not commence depositing eggs again till the following June; or whether it is double-brooded and produces a second lot of larvæ which pass

the winter in the roots, are questions which are not yet decided; and until we get a more comprehensive knowledge of this insect's ways and doings, we shall be in a measure powerless before it. From all the facts that can be obtained, the first hypothesis is the correct one, and in that event we can, in an emergency, easily get rid of this pest by plowing up and destroying the plants soon after they have done bearing, or say about the latter part of June in the southern part of the State. By doing this the whole brood of borers will perish with the plants. Most strawberry growers renew their plants, in some way or another, about every three years, and where this insect abounds, it will be best subdued by destroying the whole bed at the time already suggested, and afterwards planting a new one, rather than by annually thinning out the old and leaving the new plants in the same bed. Here we have an effectual means of extirpating the little pest, if, as I believe, the first hypothesis is the correct one; but if the second hypothesis be correct,—*i. e.*, if the insect be double-brooded,—then it will avail nothing to carry out the above suggestions, and we thus see how important it is to thoroughly understand an insect's habits, in order to properly cope with it. Though we may occasionally hit upon some plan of remedying or preventing an insect's injuries without knowing its habits, yet as a general rule we but grope in the dark until we have learned its natural history!

According to Mr. Miller, all plants infested with this larva are sure to perish, and he has also noticed that old beds are more apt to be injured by it than new ones.

In one of the roots received from him, I found a parasitic cocoon, so that there is every reason to believe that, as is so very generally the case with insects, this noxious species has at least one natural enemy which will aid us in keeping it in due bounds. Indeed, Mr. Miller so often found this parasitic cocoon, that he at first surmised that the Crown Borer spun it. But no snout-beetle larvæ spin cocoons.

This Crown Borer must not be confounded with another white worm of about the same size which lives in the ground and subsists on the roots by devouring them from the outside. This last may always be distinguished by having six distinct legs near the head, and its habits are quite different. It occurs earlier in the season, and, as I have proved the past summer, is the larva of the little clay-yellow beetle, known as the Grapevine Colaspis (*Colaspis flavida*, SAY). A full account of this last insect, with illustrations, will be given in the forthcoming Third Entomological Report of Missouri.

This weevil belongs to the genus *Analcis*, which is distinguished by its sub-cylindrical oblong-oval body, its short robust snout which fits into a deep groove, its 10-jointed antennæ, and its simple or unarmed thighs. As our strawberry insect is a new species, I subjoin a description of it for the scientific reader :

ANALCIS FRAGARLE, N. Sp.—*Imago*, Fig. 11, c—Color deep, sub-polished, chestnut-brown, the elytra somewhat lighter. Head and rostrum dark, finely and densely punctate, and with short, coarse, fulvous hairs, longest at tip of rostrum ; antennæ rather lighter towards base, 10-jointed, the scape much thickened at apex, joint 2 longest and robust, 3 moderately long, 4-7 short, 8-10 connate and forming a stout club. Thorax dark, cylindrical, slightly swollen across the middle, and uniformly covered with large thimble-like punctures, and with a few short coarse fulvous hairs, unusually arranged in three more or less distinct longitudinal lines ; pectoral groove ending between front legs. Abdomen with small remote punctures and hairs, which are denser towards apex. Legs of equal stoutness, and with shallow dilated punctures and uniform very short hairs. Elytra more yellowish-brown, dilated at the lower sides anteriorly, and with about 9 deeply-punctured striæ, the striæ sometimes obsolete ; more or less covered with coarse and short pale yellow hairs, which form, by their greater density, three more or less conspicuous transverse bands, the first of which is at base ; between the second and third band, in the middle of the elytron, is a smooth dark-brown or black spot, with a less distinct spot of the same color below the third, and a still less distinct one above the second band. Length 0.16 inch.

Described from four specimens bred of strawberry-boring larvæ. The black spots on the elytra are quite distinct and conspicuous on two specimens, less so on one, and entirely obsolete on the other.

Larva, Fig. 11, a—White with back arched Lamellicorn-fashion.

Head gamboge-yellow, glabrous with some faint transverse striations above the mouth; mandibles rufous tipped with black; labrum emarginate, and with palpi, pale. A faint narrow dorsal vascular line. Legs replaced by fleshy tubercles. Length 0.20 inch when stretched out.

I had intended to say something of the Grape Curculio and the Grape Cane Curculio; of the Hickory-nut and Hazel-nut weevils; of the Pea and Bean weevils; of the Corn-weevil, Grain-weevil and some other destructive weevils, but have already occupied more than the allotted time, and must close.

CONCLUSION.

In conclusion, ladies and gentlemen, I beg leave to assure you that this paper has been written in the true interest of science. If a single word has seemed to animadvert against any one of you, I hope you will believe me when I tell you that no reflections were intended, and that my sole object is the dissemination of truth and facts. If these facts hit with force and shatter some of the beautiful and visionary theories that have been preached to you as gospel, it is not my fault. No one should smother truth on personal grounds, or because it conflicts with the expressed opinions of another. We are all liable to make mistakes, and perhaps no man ever yet lived who did not at some time of his life commit a blunder. But the difference between the man who writes for truth and the man who writes for victory is, that the former frankly confesses his errors as soon as he is made aware of them, and even courts true criticism, while the latter never will allow that he is wrong, but having once made a false statement, will never go back on his word.

You are engaged in a most glorious work, namely, the advancement of the beautiful art and science of Horticulture. You are each of you doing what you can, in the first place, to promote the æsthetic influences of your calling, so as to elevate

and render it attractive to the young who are constantly seeking occupation in the numerous walks of life; and in the second place, to make your business more profitable. To further either or both of these objects, true science—knowledge—must be applied to all your daily operations. I say true science, because we want none of the bogus article. We must recollect that while man is the interpreter of nature, science is its right interpretation, and that it is the wrong interpretation of Nature's truths that has brought true science into such disrepute among many practical men. We cannot each of us become proficient in all departments, and must, to attain the greatest good, confine ourselves in a great measure to specialties. Professor Gould has truly said that "an equal culture in many directions is synonymous with superfleciality in all, and an 'Admirable Crichton' is to-day simply a ridiculous object."

Science means knowledge, and knowledge means power, and to promote and advance the incipient Science of Horticulture which we are engaged in, we must each of us bring the knowledge gained in our several departments, and offer it upon one common altar for the common good. The man who receives an apple tree from the nursery, and who plants and cultivates it without knowing anything of the insect enemies that are likely to ruin it, will not stand the same chance of raising fine fruit from that tree, as that man will, who, with the requisite knowledge guards against catastrophe, by first examining the young tree so as to destroy bark-lice, root-lice, or the eggs of caterpillars that may be upon it; who afterwards soaps it carefully, to prevent the borers, and eventually, when it comes into bearing, properly surrounds its trunk with rags to entrap the Apple-worm; and the same argument applies to all other kinds of knowledge necessary to the proper cultivation of such a tree.

"A little fire is quickly trodden out,
Which, being suffered, rivers cannot quench,"

and we must always bear in mind in dealing with insects that it is far easier to prevent than to cure.

You are no doubt all of you familiar with the quotation from Dean Swift's account of what the King of Brobdignag said to Lemuel Gulliver: "And he gave it for his opinion, that whoever could make two ears of corn, or two blades of grass, to grow upon a spot of ground where only one grew before, would deserve better of mankind, and do more essential service to his country, than the whole race of politicians put together."

I take it that we are each of us doing our utmost to carry out King Brobdignag's idea, and in these annual reunions, when by interchange of the experience of the out-going year, we hope to benefit each other, let the past be forgotten in the kindly feelings of the present, and the hopes of the future. Let us, in Tennyson's beautiful language,

"Ring out the old,
Ring in the new,
Ring out the false.
Ring in the true."

R E P O R T

OF THE DELEGATION TO THE

AMERICAN POMOLOGICAL SOCIETY'S

M E E T I N G .

THIRTEENTH EXHIBITION OF THE AMERICAN POMOLOGICAL SOCIETY.

To the President and Members of the Michigan State Pomological Society:

GENTLEMEN:—Your delegation elected to attend the thirteenth session of the American Pomological Society, respectfully offer the following report of the observations and results of the journey:

FIRST DAY'S PROCEEDINGS.

The first day of the joint exhibition of the American Pomological and Virginia State Horticultural and Pomological Societies must have been sufficient to convince the most sceptical and desponding of its success. Men largely engaged in fruit culture, and who have attended the annual meetings of the national society for years, concur in expressing the opinion that no more varied and attractive assortment of fine fruits has ever been collected under one roof in this country. Certainly no exhibition of the American Pomological Society has been more successful in this respect. And we may add that it is also an unparalleled success in the large attendance of members of the society, and other intelligent gentlemen from all parts of the Union, a majority of whom evidently come full of the spirit of professional or amateur pomologists, and with an unmistakable desire to see all that is to be seen, and to obtain as well as to impart information.

ASSEMBLY HALL,

in which the exhibition is held, has been well fitted up for the purpose. The front of the building is prettily festooned with cedar, and a large lantern suspended over the main entrance

is lit at night to show that something unusual is going on within. The interior is also tastefully decorated with evergreens, and well-selected chromo pictures add not a little to the beauty of the scene. Long tables around the walls and in other places, judiciously arranged, are laden with fruits of every description placed on exhibition. In the center of the room, Morton, the florist, has erected a splendid pyramid of gay flowers and plants of a variegated foliage, while Leckenby & Laird and J. W. Turner, also Richmond florists, have beautified the west end of the hall in like manner with flowers carefully selected and tastefully arranged. These all combine to make the spectacle as the visitor enters the hall one of rare beauty.

THE EXHIBITION.

Without further introductory or descriptive remarks, we proceed to note the features of the exhibition most worthy of mention, classifying the collections according to the States which they represent.

NEW YORK.

Ellwanger & Barry of the Mount Hope Nursery, Rochester, N. Y., display 150 varieties of superior apples.

Smith, Clark & Powell of Syracuse contribute a good assortment of pears, which arrived last evening.

MARYLAND.

W. D. Brackinridge of Govanstown, near Baltimore, is the only exhibitor from this State. He sends a pretty assortment of pears, embracing forty varieties.

IOWA.

Iowa, we think, takes the lead in the apple department. She has two exhibitors,—Mark Miller, editor of the *Des Moines Western Pomologist*, and H. Leonard of Burlington, Iowa. Mr. Miller has 118 varieties of apples, scientifically classified. They were raised in the vicinity of Des Moines, where 23 years ago there was not an apple tree of any kind whatever.

Mr. Leonard shows 115 varieties of apples and 35 of pears. This Iowa fruit is beautiful to look upon, and has been remarkably well preserved. It was shipped about a week ago, and arrived on Tuesday, by express. Not more than a dozen apples were lost to the exhibitors, and very few are at all specked.

NEW JERSEY.

The Pomona Nurseries of Cinnaminson, New Jersey, Wm. Parry, proprietor, is represented by twenty-six varieties of pears and three of apples. This collection is unusually fine.

PENNSYLVANIA.

D. W. Herstine of Philadelphia exhibits several varieties of beautiful new seedling raspberries preserved in spirits.

Engle Brothers of Marietta, Lancaster county, send some splendid apples.

TEXAS.

Texas contributes a jar of dried figs, exhibited by Mrs. S. E. Byers of Clear Creek, Galveston county.

MASSACHUSETTS.

Hon. Marshall P. Wilder of Boston, President of the American Pomological Society, displays a beautiful and varied assortment of pears, raised by himself. It embraces no less than 230 varieties. Mr. Wilder has offered a premium of \$50 for the largest and best collection of pears.

F. & L. Clapp, also of Boston, exhibit a fine collection of beautiful pears, the result of intelligent hybridizing.

GEORGIA.

Southern Georgia contributes a number of varieties of tempting apples.

WASHINGTON, D. C.

John Saul of Washington, representing the Potomac Fruit-Growers' Association, sends an attractive assortment of apples and pears.

The Agricultural Department of the United States Govern-

ment contributes fine specimens of pears and wine grapes. This contribution is not so large as might have been expected, but it may be enlarged before the exhibition closes.

OHIO.

George W. Campbell, Vice-President of the Ohio Horticultural Society, is here, and has brought with him some fine grapes.

NEBRASKA.

One long table is occupied almost entirely by fruit from this great Northwestern State. We noted here 146 varieties of apples, 15 of peaches, 13 of pears, 1 of plums, and 1 of grapes. They come from Nemaha and Otoe county, Nebraska City being located in the last named. The exhibitors are J. H. Masters, President, and R. W. Furnas, Secretary of the Nebraska State Horticultural and Pomological Society. Their fruit is not in such good order as that from California, Kansas, and Iowa, which is probably owing to the inexperience of the packers. Mr. Masters tells us that all except the peaches was packed in paper, and shipped about a week ago. Specimens of several varieties of early fruit were lost on the way. But it will be seen from what has been said above, that Nebraska is ahead of many States. The peaches from this State are very fine.

KANSAS.

No State is ahead of Kansas in the quality and quantity of its contributions. She sends apples, pears, and grapes, principally from Douglass, Leavenworth, and Donnavan counties. The collection was made and contributed by the Kansas Horticultural Society, and is under the supervision of Drs. Hawley and Stayman, and F. Welhouse. Their assortment of apples is about the largest in the hall, embracing 200 varieties. They have also 20 varieties of pears and 20 of grapes. Dr. Stayman exhibits fifty varieties of apples of his own raising. The Kansas fruit is generally fine in color and good sized, but a good deal of it has been more or less bruised in transporta-

tion. It was packed in paper and shipped on the 31st of August.

MICHIGAN

shows herself as great in fruit as in minerals. Mr. A. T. Linderman, who presides over this department, shows 108 varieties of apples of a superior quality, and 10 of pears, which are from the orchard of T. T. Lyon, Plymouth, Wayne county; some large late peaches and 5 varieties of grapes, from the vineyards of Ed. Bradfield of Ada, Kent county. This fruit is in excellent condition, owing to the care taken in packing it, and the improved apparatus used for its transportation. The case of peaches is from the town of Spring Lake, in the western portion of the State, already so famous for the production of the peach, apple, pear, cherry, and grape, while all the small fruits find in its marvelously tempered climate their perfect home. And with their unsurpassed marketing facilities—several boats daily ploughing across the lake from their very doors to Chicago and Milwaukee—we see no reason why these people should not enjoy life, if wealth and health—one of the famous magnetic mineral wells is at Spring Lake—is conducive to its enjoyment.

MINNESOTA

is also well represented, the consignment from that distant Northwestern State having arrived last night, after being ten days on the way. The localities represented are Minneapolis, Winona, Lake City, and Lake Crescent, and P. A. Jewell of Lake City is the exhibitor. He displays fifty varieties of apples, several of pears, three of native plums, and one lot of seedling grapes. His assortment of Siberian crab apples is probably the finest ever shown at a national exhibition. Some of these apples are of the finest flavor, notwithstanding the proverbial bitterness of their species.

NOTE.—Modesty compels us to take the description of Michigan's contribution, given above, from *Richmond Daily Dispatch*.—S.E.C.'R.

ILLINOIS.

The southern part of Illinois, which is a famous fruit country, contributes about 200 varieties of apples, which cannot easily be surpassed. There are also in this collection some splendid pears. The collection is in charge of Parker Earle, Esq., of Cobham, Ill.

SOUTH CAROLINA.

This State sends — varieties of seedling grapes, exhibited by Dr. Wiley of —.

NORTH CAROLINA.

The representative of the old North State is John Hopkins, an old citizen of Wilmington, who brings with him some bunches of Muscadine and Scuppernong grapes, which attracted much attention. Mr. Hopkins raised them in his own garden. They are very large, and of a delightful flavor.

CALIFORNIA.

The collection from this State embraces a great variety, and almost every specimen is remarkable for its superior quality. Having been carefully packed in plaster, and by experienced hands, the fruit was all in excellent preservation. We noticed fine apples, mammoth pears, figs, grapes, plums, and oranges on this table. The pears are beautiful to the eye and luscious to the taste. Dr. Curtis is in charge of the California table.

VIRGINIA

has reason to be proud of her fine display of fruits, even by the side of the varied collections and mammoth specimens of the East and Northwest.

Captain H. B. Jones, the veteran pomologist of Rockbridge county, is on hand with his fine display of fruit, raised in his own orchards. He exhibits this year 110 varieties of apples, including 14 native seedlings; 11 of pears, 8 of grapes, and 10 of peaches.

Franklin Davis & Co. of Richmond, have of apples 100

varieties; of pears, 25; of peaches, 15; besides several kinds of grapes.

Richard Irby of Richmond sends several plates of mammoth Gloria Mundi apples.

H. R. Robey of Fredericksburg, 5 varieties of grapes, 23 of apples, and 22 of pears. Pretty assortment.

Wm. O. Hurt of Bedford county, 51 varieties of native apples,—making a most creditable display.

H. C. Williams of Fairfax, 6 varieties of pears, 36 of apples, and 6 of new native grapes.

Gillingham & Co. of Accotink, Va., display a fine lot of apples and pears.

Albemarle county sends a splendid assortment of apples, exhibited by Tyree Dollins & Bro. of Batesville. They have catalogued 200 varieties, many of which are superior native seedlings.

Norfolk takes the lead in big pears. Those exhibited by Mr. G. F. B. Leighton attracted a great deal of attention by reason of their unusual size, and the committee pronounced them delicious in flavor. One of them weighs within an ounce of a pound. The varieties contributed by Mr. Leighton are the Duchess d'Angouleme, Seckel, Bartlett, Beurre, Sangeheur, Louise Bonne de Jersey, Beurre Diel, and Beurre Superfine. Hon. J. B. Whitehead of the same city sends fine Seckels, and from J. S. Taggart come pretty specimens of the same variety, raised in his garden.

Dr. S. E. Dove of Richmond displays a good many plates of fine apples and pears, not classified.

Col. J. Ravenscroft Jones of Brunswick sends 11 varieties of superior apples.

From the Munson Hill nurseries there are many fine pears and apples, exhibited by D. O. Munson of Falls Church, Va.

Manfred Call of Henrico county, Va., also contributes some pears hard to beat, though they are in an orchard in its second year.

The Virginia Nursery and Wine Company (Allan & Johnson, general agents) show eleven bottles of Virginia wines, including samples each of Norfolk, Herremont, and Concord, and one each of Clinton, Catawba, and To Kalon.

J. W. Porter of Albemarle came in last evening with several superior varieties of apples and grapes. Among the latter were fine specimens of the wild grape of the mountains.

George W. Purvis of Nelson county contributes a small but excellent assortment of apples, peaches, and grapes. The latter are particularly good.

Mr. J. G. Beattie of Henrico county displays the finest wine-sap apples on exhibition, and it is to be noted that they were raised, as in the case of Mr. Call, noted above, by an amateur.

F. W. Lemosey, one of the pioneer pomologists of Virginia, sends several bottles of wine of his own manufacture.

BUSINESS MEETING OF THE SOCIETY.

The biennial session of the American Pomological Society convened in the dining-room of the Exchange Hotel yesterday morning at 9 o'clock.

Mr. John M. Allan, President of the Virginia Horticultural and Pomological Society, addressed the assembly, and said that no more pleasant duty could have devolved upon him than that of welcoming them to Richmond. Two years ago the Society of Virginia Pomologists had thanked the American Society for the promise to come, and to-day he had to thank them in behalf of his society for coming here. He was aware of the pressing business which awaited the attention of the national body thus convened, and it was not his desire further to detain them than to extend a cordial welcome. He hoped that their sessions would prove harmonious, prosperous, and pleasant, and, again welcoming his friends from all parts of the country, took his seat.

Marshall P. Wilder, Esq., President of the American Pomological Society, replied, thanking Mr. Allan for his cordial reception and welcome, and, on behalf of the Society, accepted

it with equal warmth and feeling. He was glad to see so many representatives of this great country, men from the "everglades of Florida" to the cold country of the far North. It was a pleasure to him to be in the midst of such an assemblage; and from whatever clime they came, he welcomed them from his heart. He appreciated the hospitality already shown the American Pomological Society, and was assured that its sessions would not only prove harmonious and pleasant, but when ended, and each member at his home, he would have something to remember which would ever prove agreeable.

The Convention was then called to order by the President, and the Vice-Presidents and others were invited to seats upon the platform, preparatory to business.

The first business in order was the appointment of committees for the dispatch of business, which committees were announced as follows:

On Credentials—Wm. Saunders of the District of Columbia, John C. Hovey of Massachusetts, Henry Ellwanger of New York, John Morton of Virginia.

On Business—Parker Earle of Illinois, P. T. Quinn of New Jersey, R. Buist of Pennsylvania, Hon. W. Schley of Georgia, and Dr. Wm. Howsley of Kansas.

On Nominations of Officers—J. M. Allan of Virginia, W. C. Barry of New York, John Saul of the District of Columbia, Hon. Joel Parker of Massachusetts, Joshua Lindsey of North Carolina, John L. McIntosh of Ohio, W. C. Flagg of Illinois, Thos. Meehan of Pennsylvania, J. S. Downward of Kentucky, Wm. Parry of New Jersey, Dr. Wylie of South Carolina, Wm. Heaver of Tennessee, P. J. Berckmans of Georgia, Edwin Hoyt of Connecticut, Mark Miller of Iowa, R. W. Furnas of Nebraska, Dr. J. S. Curtiss of California, Col. Hardee of Florida, Silas Moore of Rhode Island, Col. Langdon of Alabama.

On Fruits Exhibited—J. E. M. Gillery of Massachusetts, B. K. Bliss of New York, Dr. Jas. F. Johnson of Virginia.

Permanent Committee on Native Fruits—P. J. Beckmans of Georgia, Chas. Downing of New York, Ro. Manning of Massachusetts, Thos. Mechan of Pennsylvania, W. C. Flagg of Illinois, P. T. Quinn of New Jersey, John M. Allan of Virginia.

MEMBERSHIP FEES.

During the absence of the Business Committee, a resolution was presented fixing the membership fee for active members at \$3 biennially, and \$20 for life members. This resolution elicited quite a lengthy discussion, which was engaged in by representatives from many States; and after the defeat of several proposed amendments, the biennial fee was fixed at \$4, and after this session at \$20 for life membership.

THE ORDER OF BUSINESS.

The committee to prepare business for the meeting having returned, presented the following as the order, which was adopted by the Society:

Hours of Meeting—Wednesday, 9 A. M. and 3 P. M.; Thursday 10 A. M. and 3 P. M.; Friday, 9 A. M. and 3 P. M.

Rules for Speaking—Five minutes; and no person to speak more than twice on the same subject without leave.

Essays—All essays to be referred to committees, but not read before the Convention.

WEDNESDAY.

At 3 P. M., address of the President, at the close of which election of officers. Then reading of the Treasurer's report.

THURSDAY.

Ten A. M., discussion in regard to place of holding next meeting, and in regard to the form of a permanent catalogue.

Discussion on apples suited to general cultivation in the Southern States. The discussion to be opened by Southern members, and they requested to speak only of varieties well

known and tested. Apples to be followed by pears, peaches, plums, grapes, apricots, nectarines, etc., etc.

Three P. M.—Reports of committees. Introduction of subjects by members, relating to pruning, diseases, etc., all of which to be transferred to committees for report; after which discussion continued.

FRIDAY.

Nine A. M.—Reports of committees, resolutions, incidental remarks and suggestions, discussion of fruits continued.

P. M.—Resolutions, discussions continued, adjournment.

A WELCOME TO THE SOCIETY.

A communication was received from W. B. Isaacs, Esq., Chairman of the Reception Committee, proffering an address of welcome from the Mayor, to be delivered in the hall of the House of Delegates at 12½ o'clock P. M.

On behalf of the City Council and the Committee of Reception, Mr. Isaacs also extended to the Society an invitation to participate in an excursion down James river on the steamer Palisade this afternoon at 4½ o'clock. The invitations were unanimously accepted.

After some desultory discussion, at 11 o'clock the Society adjourned to meet again at 12, and then proceed in a body to the Capitol to be welcomed by the Mayor.

FORMAL WELCOME.

After the adjournment of the Society, the members in the hall, to the number of one hundred or more, formed in procession and marched in couples, arm in arm, to the hall of the House of Delegates, in the Capitol, where many persons had already assembled to witness the formal welcome of guests to Richmond. All being seated, Mr. John M. Allan, of the Virginia Horticultural and Pomological Society, in a few words introduced the Hon. Marshall P. Wilder, President of the American Pomological Society, to the Hon. A. M. Keiley,

Mayor of Richmond. We give Mr. Keiley's most felicitous address of welcome in full. It is as follows:

ADDRESS OF MAYOR KEILEY.

MR. PRESIDENT AND GENTLEMEN:—It is a pleasant service to be charged with extending you, as I am happy to do, a very cordial welcome to our city, on behalf of the authorities and people of Richmond, and I embrace the occasion also to congratulate my fellow citizens on the presence among them of so large and intelligent a body of gentlemen from all parts of our common country, engaged in a duty so beneficent that their deliberations will provoke hostile criticism in no quarter.

The union of science with labor is among the most characteristic peculiarities of our age. The time was when philosophy marched along the highways of the earth, wrapped in a lordly pride which disdained all association with labor, and if it deigned to cast a look across the hedge that divided it from the field and the garden, it was to vent its scorn on the dusty hand and less intelligent brain there engaged. From this, two great evils resulted. First, agriculture and every other form of fruitful labor lost the important aid of philosophy, and, secondly, philosophy itself lost the powerful stimulus which profit lends to every development of human effort.

Almost within our memories all this has been changed; the white hand has clasped the brown, the teeming brain has grasped the plow, the pruning-hook, and the sickle, and those great agencies for the betterment of our race whom God hath joined are no longer by man to be sundered. And with what splendid results on every hand! Surely if he may be claimed to be a benefactor of his race who makes two blades of grass grow where only one grew before, your praise should be a thousand-fold greater who have taken the bitter fruit of a thorny tree in the wilds of Eastern Europe, unfitted for food for man or beast, and therefrom have developed the most delicious fruit of our day in more than five hundred varieties. [Applause.] And lastly, gentlemen, I welcome you with

peculiar pleasure, as this is your first assembling in a Southern city. Let me indulge the hope that you have not only brought hither your persons and the superb results of your skill, but that you have come among us bringing your hearts likewise. [Great applause.]

When the late unhappy strife was ended, the first act of reconstruction was passed by Nature. Our brother-blood was still boiling in hostile veins; the clenched hand was still unrelaxed, and the passions of war were still rife, when from a thousand skies and hillsides, and athwart a thousand plains, came the generous sunlight, the gentle rain, and the tempering winds, filling up the gaping rifle-pits, battering down the sharp escarpments of frowning forts, blotting out with waving grain the fierce scar of shot and shell, crowning battlements with fragrant flowers, and weaving a beautiful carpet of green over the scenes and sites of war's worst devastations. [Applause.] May it be your happy fortune and high privilege, gentlemen,—you who labor with Nature in so many pleasant and profitable fields,—to lend her a helping hand and a willing heart in this, the noblest field of all! [Loud and continued applause.]

COL. WILDER'S REPLY.

Col. Wilder then stepped forward and spoke as follows:

“MR. MAYOR.—In behalf of the American Pomological Society, and in my own behalf, I tender to you my grateful acknowledgments for your gracious welcome and most eloquent words in which you have addressed us. I am happy to be here—we are happy to be here—in the capital of the Old Dominion, a State so distinguished for the production of illustrious men,—of Washington, Jefferson, Madison, Monroe, Harrison, and Tyler,—all of whom have filled the highest station in the gift of the people; John Marshall, Patrick Henry, and Henry Clay, names that will ever constitute a galaxy of talent to fill the brightest page in the annals of American history. We come from different and widely distant sections of our country. I come from the cold and sterile soil of New England, where

we have not the luxuriant soil of the West, nor the warm, genial, sunny clime of the South. But, sir, we have hearts as warm as yours; and although granite and ice enter largely into our exports, they are no evidence of the hardness of our hearts or the coldness of our affections. I assure you, sir, we are most happy to be here to meet our Southern brethren on Southern soil, to concert measures for the promotion of the object of our Society,—the extension of fruit culture throughout the length and breadth of our land. With the natural advantages which the South possesses, and especially your own Virginia, upon which the North depends so largely for early fruits, the time is not far distant when fruit culture will constitute a source of revenue scarcely second to any product of the soil. Our Society is now in session; our time is very precious, and with the hope that you and your Board will honor us with your presence at our meetings, I beg you will allow us to retire.”

Colonel Wilder was frequently interrupted by applause. When he concluded, he shook hands with Mayor Keiley, and Mr. Gilley of Boston arose and proposed “Three cheers for Massachusetts and Virginia shaking hands.” The cheers were given with a vim. An enthusiastic delegate then demanded a “tiger,” and that was given likewise.

The delegates then dispersed, and spent an hour or two in strolling over the Capitol and park, and viewing other points of interest in the city.

BIENNIAL ADDRESS OF THE PRESIDENT.

At 3 o'clock P. M., the Society being in session at the Exchange Hotel, President Wilder delivered his biennial address.

ADDRESS DELIVERED AT THE THIRTEENTH SESSION OF
THE AMERICAN POMOLOGICAL SOCIETY, BY
MARSHALL P. WILDER.

Gentlemen and Friends of the American Pomological Society :

Twenty-three years have nearly elapsed since the organization of this Society, in the city of New York. Held, as our meetings have been, in different and widely distant parts of our country, I deem it proper very briefly to allude to its history, objects, and progress. Especially is this desirable as a means of information to such southern portions of our Union as may not have been conversant with the proceedings of the Society. Its object is to advance that most interesting and delightful pursuit, the cultivation of fruits; to promote and perpetuate a cordial spirit of intercourse between pomologists; to compare fruits, and opinions concerning them; to settle doubtful points in pomology, and to establish a standard for every section of this great Western Continent. How well this has been done, the Society need no better testimonial than is furnished by its published Transactions, the widespread influence it has exerted, not only in our own, but other portions of the world, and especially by this grand assemblage of American fruits and American men. Many of the noble men who aided in the establishment of this Society have ceased from their labors,—Downing, Prince, Saul, Hodge, Bergen, Underhill, of New York; Brinckle of Pennsylvania; Walker, French, Crapo, and Lovett, of Massachusetts; Monson of Connecticut; Ernst, of Ohio; Hancock and Reid of New Jersey; Kennicott of Illinois; Eaton of Rhode Island; White of Georgia; Pierce of the District of Columbia. These, and other associates of fair fame, have gone to their reward; but we rejoice that some still live who, from the earlier years of our history, have distinguished themselves as the untiring

friends of our institution; who, by their efficient services and wise counsels, have contributed to its prosperity, some of whom are here to-day to rejoice with us in the progress of our science and the perpetuity of our institution.

Nor would we forget the eminent services and devotion of others of later days, to whom we are under equal obligations for the extension and influence of our Society, whose efforts have brought together the cultivators of fruits from the most distant portions of our country, thus making our institution what it was designed by its founders to be,—a truly national association, where the knowledge of one becomes the property of all; an association that should constitute a compendium of experience, and where, without regard to religious creed or sectional prejudice, a community of interest, enterprise, and action might be established for the promotion of a great source of national wealth and human happiness.

In order to promote the convenience of all, to distribute its favors, and increase its influence, the Society has wisely held its sessions in different and distant States of the Union. New York, Pennsylvania, Ohio, Massachusetts, and Missouri have extended hospitalities to the Society, and some of these States have been repeatedly favored with the presence of its members, and the privilege of listening to their discussions. And now I congratulate you most sincerely upon the auspicious circumstances which enable us to meet in this city, among our Southern brethren, who have honored us with so cordial a welcome, and so large a representation of her men and her resources, here, in the capital of Virginia,—a State so renowned as the mother of Presidents, and the home of some of the most distinguished patrons of American agriculture, among whom may be named Washington, Jefferson, and others, who will ever be remembered as benefactors of their race.

I have so often addressed you on topics connected with the practical labors of our calling, that it can scarcely be anticipated that I should have anything new to offer for your consideration, especially in the presence of so many whose research

and experience are fully equal to my own. I know, too, how precious our time is, and I should not attempt it were it not a duty enjoined by the constitution of our Society. This duty will be performed in as brief a manner as its importance will permit.

I would therefore suggest that it is desirable for us to gather up for future use the lessons which have been acquired by the experience of the past. We have been so busy in accumulating knowledge in the various branches of our culture, that we have had no time to look back and to systematize the inferences and deductions to be drawn from our operations. But we believe the time has now come when we should pause, and survey the field, and make a review of the lessons which science has taught; for science is but a statement of these lessons,—experience systematized and trained for progress. It is the grains of sand that roll up the mountain, the drops of water that make the ocean, and it is lesson upon lesson, fact upon fact, which must build up the science we wish to create. Nothing in the present age astonishes us more than the wonderful power of association,—the centralization of thought and action for the promotion of particular objects, thus collecting the experience of individuals, and diffusing this knowledge for the benefit of the world. How clearly is this seen in the operations of our own Society. How great the changes and how rapid the progress since its formation! Then its list of members was 107; now its roll contains the names of 311 persons. Then its sphere of operations was limited by the boundaries of a few States; now its field extends from ocean to ocean, from the Provinces to the Gulf, and wherever the foot of civilization rests in our broad domain. Nor is it too much to say, that in this space of time more progress has been made in the science of pomology than in the whole period since the settlement of our country. Never before was the interest so engrossing, or so widely extended. By publications, correspondence, and the remarkable facilities for interchange and

intercourse, the enterprise of cultivators is kept constantly on the alert; and instead of useless discussions of other subjects, the pomologist finds all his time occupied in efforts for improvement.

How surprising the changes which have taken place during the existence of this Society! States and sections of the Union which were scarcely known by name, now contribute noble fruits to grace our exhibitions, and noble men to join us in efforts for the promotion of the public good; and by the wonderful achievements of science and the golden chain of commerce, a reciprocal exchange is made of our fruits, distances are almost annihilated, and where fruits were only to be seen in our markets at their peculiar season, they are now found throughout the entire circle of the year. And by the arts of preservation, the seasons of our fruits are further prolonged, until those of winter even linger in the lap of summer. Thus our choicest varieties are successively matured; thus distant markets are brought near together, so that the apple, the pear, and the grape, from the South and West, meet in the Northern clime of New England in midsummer; and California, Kansas, Nebraska, and Illinois compete at the same time with Virginia, the Carolinas, and Georgia, in our Northern markets.

LESSONS OF EXPERIENCE.

I. THE INFLUENCE OF WARM, DRY SEASONS.

Among the lessons which we have learned, we may mention as settled and acknowledged principles the following:

The observations of the last few years, under the influence of warm, dry seasons, would appear to have established the principle that such weather (without excessive drought), especially in the earlier part of the summer, is more favorable to the perfection and ripening of fruits, particularly grapes, than cold, wet seasons. The fact is prominently shown in California, as we have witnessed by personal observation; and

is especially to be seen in the cultivation of the grape there, and also in Europe, and in our Northern States, where, under the influence of such seasons, neither the vine nor its fruit is affected by disease of any kind. These conditions we have noticed are also peculiarly advantageous for the formation of fruit-buds, and the storing up of the necessary perfected food for a future crop, and for the ripening of the wood, so necessary that it may endure the winter with safety.

II. DRAINING OF FRUIT LANDS.

In conformity with the foregoing remarks, we see the importance of thorough *draining* of our fruit lands, which produces in soils not naturally possessing them, the conditions of warmth and dryness which we have named, thus rendering the condition of the earth, in respect to warmth and dryness, analogous to that of the air, of the importance of which we have before spoken. Besides these advantages, is the thorough aeration of the soil, whereby it is enabled to absorb fertilizing matter from the atmosphere, rain, and snow, and the moisture evaporated from the springs below. Thus, paradoxical as it may seem, the same means which guard against excessive wet also serve to supply moisture in excessive droughts. How aptly does the poet describe this condition :

“In grounds by art made dry, the watery bane
Which mars the wholesome fruit is turned to use,
And drains, while drawing noxious vapors off,
Serve also to diffuse a full supply.”

III. PREPARATION AND CULTIVATION OF THE SOIL.

It seems scarcely necessary, in this presence, to say that thorough preparation and enrichment, of such soils as are not already rich, is essential. Ordinary farm culture will not produce the highest class of fruits; they must have garden culture, and with this they never fail. After this thorough preparation, the cleaner the culture the better, at least in our older States, where the soils have been depleted by cropping. But

one of the lessons which experience has taught us most impressively is that, contrary to our former views, this after-cultivation should be shallow, so as not to injure the roots; but to preserve them near the surface.

IV. MANURES AND THEIR APPLICATION.

The subject of manures is a most important one, and every year becoming more so. The supply of manure, in the older part of our country, is unequal to the demand, and every year increases the disparity. What would be our feelings if the supply of wheat, on which we depend for our daily bread, were inadequate to the demand? Yet men are not more dependent for life, upon their daily bread, than are our fruit crops upon the food which is supplied to them in the form of manure of one kind or another. To supply this want, we shall be compelled to rely, in great measure, upon artificial fertilizers; and chemistry has not yet taught us, as it will doubtless in the future, how to supply the wants of our fruit crops with certainty and abundance. But we cannot too often or too forcibly impress upon the minds of all cultivators, the sacred duty of saving every particle of fertilizing material, and applying it in such manner as will produce the utmost effect. And, on this last point, the lesson which experience has taught us is, that manure applied to fruit trees should be either in the form of a top-dressing, or as near the surface as is consistent with the composition of the soil and the preservation of its fertilizing elements.

V. MULCHING.

While on this subject we will add, as another of the lessons of experience which may be said to be fixed, the advantage of mulching for dry seasons and soils, whereby the temperature and moisture of the soils are kept uniform, and the fertilizing elements in a soluble state, an essential condition for the production of perfect fruit.

VI. THINNING OF FRUIT.

This is another lesson which we have learned, and the necessity of which we have often endeavored to impress upon cultivators, and which every successive season teaches with stronger emphasis. It is absolutely necessary for all who send fruit to market, to send large fruit, and the markets are constantly and progressively requiring large and fine fruit. Even the Seckel pear, which once commanded, in Boston market, the highest price, will not now, unless of extra size, sell for any more than, if as much as, common varieties of larger size. A medium-sized fruit, or even one of smaller size, may be more economical for use; but until some decided change, in the preferences of the majority of purchasers, shall take place, large fruit will sell better than small. To produce this, the fruit must not only have good cultivation, but must be thinned; and we agree with Mr. Meehan that "one-half the trees which bear fruit every year, would be benefited by having one-half the fruit taken off as soon as it is well set; and that the overbearing of a tree will, in a few years, destroy it." We may lay it down as a certain rule, that excessive production is always at the expense of both quantity and quality, if not in the same season, then in succeeding ones; for when branch is contending with branch, leaf with leaf, and fruit with fruit, for its supply of light and food, it would be indeed an anomaly in nature, if this should not result in permanent injury to the trees as well as to the annual crop.

VII. INSECTS AND DISEASES.

The subject of insects and diseases is daily attracting more attention, for their depredations are daily becoming a greater evil, and the importance of entomological investigations is every day more plainly seen. It is less than fifty years since Dr. Harris first published his work on "Insects Injurious to Vegetation," and great is the debt of gratitude which we owe to him and to the succeeding investigators who have given

their lives to studying the habits of these little "creeping things which be upon the earth," that they may teach us how to destroy those which prey upon our trees, and to distinguish our friends from our foes. Every plant imported from abroad brings with it a new insect or disease, and the dissemination of new plants and varieties, without which there can be no progress in horticulture, inevitably disseminates their insect enemies. On this subject the words of Edmund Burke are appropriate: "The most vigilant superintendence, the most prompt activity, which has no such day as to-morrow in its calendar, are necessary to the farmer;" and, we may add, still more to the fruit-grower, and tenfold more necessary in combating our insect enemies. The neglect of battling with these vile creatures is the great bane to successful cultivation; but as long as moral evil exists in the world, so long may we expect there will be evil in the natural world, and he who is not willing to contend against both is not worthy of the name either of cultivator or of Christian.

We belong to that class who have faith in the ultimate triumph of good over evil in the moral world, and our faith is not less strong that the insect plagues shall, if not exterminated, at least be subdued, so that the labor of keeping them so far in check that no material harm shall be caused by them will be comparatively easy. We have discovered means for preventing the ravages of the currant-worm, curculio, canker-worm, caterpillar, melon-bug, and aphis, and the mildew and other diseases of our vines. If we can do this, is it not reasonable to suppose that we can discover remedies for, or the means of preventing, all the diseases and depredations that vegetation is liable to? Is it consistent with that Divine economy, so benevolent in all its ways and works, to believe that this fair creation has been spread out only to be destroyed; that seed-time should be promised and the harvest withheld; and from year to year our hopes deferred and our hearts made sick? Is it in harmony with that Divine Providence which created all things and pronounced them very good?

If any one say it is of no use to contend with these hordes of vile creatures, or the disappointments upon which all culture is incident, let him remember that it is the mission of life to struggle against and overcome them. Instead of fretting and groaning over these evils, let us battle with them and conquer them. Thus shall we gather the rich fruits of our industry, and.

“Where some would find thorns but to torture the flesh,
We’ll pluck the ripe clusters our souls to refresh.”

But some one replies, Let Nature do all this, let Nature perform her perfect work. True, but Nature brings us weeds, thistles, and thorns, insects injurious to vegetation as well as those that are useful; and we were placed in this world, not merely to assist Nature, but to meet with and overcome the obstacles which she sometimes places in our path,—to elevate her to the highest and noblest purposes of her creation.

Many of the difficulties and privations we endure, if met and conquered, will prove blessings in disguise. It is labor of mind as well as body, it is work, work, work, that makes men strong. Work is the great engine that moulds and moves the intellect, enterprise, and destiny of the world; work is the greatest temporal boon bestowed on man; work is the heaven-appointed means of advancement to a higher state of perfection; and in no profession is this more apparent than in the calling of the pomologist. This idea is well expressed in the following lines, illustrative of the blessings of labor:

“The first man and the first of men
Were tillers of the soil;
And that was Mercy’s mandate then
Which destined man to toil.”

If a man can seize the lightning in his hand and make it work for him in earth, air, or water; if he can descend into the secret laboratory of Nature, and learn the constituents of soils and manures, and their adaptation to each other; if he can learn how she prepares the appropriate food for all vegeta-

ble life, from the humblest plant clinging close to the bosom of earth, only blooming to die, to the lofty Sequoia rearing its head to heaven and braving the tempests for thousands of years; if the physician can discover the agents which generate disease in the animal kingdom, and prescribe antidotes and remedies for each,—may not the cultivator acquire a knowledge of the diseases which affect his trees and plants, and how to cure them?

Is there any element in nature which man cannot make subservient to his use? Is there any disease for which Nature has not provided a remedy? Is there any enemy to vegetation that cannot be overcome? True, there are many things of which we know but little, and which require long and careful study, but there are others which are well established, and which one fact may demonstrate as well as a thousand.

VIII. SHELTER.

The necessity of shelter was not as soon perceived as some of the other lessons which I have named; yet, with perhaps the exception of a few favored spots, its importance is year by year becoming more generally appreciated, especially on our open prairies and in the northern and northwestern portions of our country. The fact is established, that the removal of forests diminishes the quantity of rain, increases the evaporation of moisture, reduces the temperature, and subjects our fruits to greater vicissitudes, so that the peach and many of our finest pears can be no longer cultivated at the North, except in gardens or sheltered places. The importance of shelter was well understood as long ago as the time of Quintinye, who, in his work on gardening, gives full directions for planting trees for shelter. This was in a country long settled and denuded of its forests; and though our ancestors, planting fruit-trees in a virgin soil thickly covered with wood, failed to perceive its necessity, we in our older States, who have come to much the same conditions as existed in the time of Quintinye, experience the same want.

There may be exceptions to this rule, as in the South, where the fruit season is warm and dry, producing similar conditions to those afforded by shelter under glass. We may find varieties, and probably shall, adapted to exposed situations; but at present the larger majority of our finer fruits will be benefited by the shelter of belts of forest trees. We are glad, therefore, to see the recognition of the advantages of forest trees on the part of the managers of our Pacific railways, not only as affording shelter, but as collecting moisture from the atmosphere, and so rendering available vast regions previously uninhabitable from drought. This good work has already been commenced on the line of the Kansas Pacific Railroad.

IX. METEOROLOGY.

Besides the lessons which experience has already taught us, permit me to mention one which pomologists ought to learn, and which, from present indications, I have no doubt they will learn. The pomologist should have a better knowledge of the science of meteorology than we now possess. The action of light and heat, the influence of the winds, of frost, fog, water, and the electrical condition of the air and earth, have a most important bearing, and we believe that when our science shall have attained to its greatest perfection, there will be a discreet classification of our fruits, assigning to each its proper soil, location, and aspect. We must not expect to alter the laws of nature, but to conform to them. We do not expect to restore the lost Pleiad, nor do we expect to find any supernatural means whereby improvement and progress can be attained, without mental or physical exertion, but we should endeavor to understand some of the workings of that mysterious machine which generates and perpetuates all vegetable life. True, "the wind bloweth where it listeth," as of old, but it seems probable, if not certain, from the investigations made at Washington, that man can not only tell from whence it will come and where it will blow, but where the sun will shed its rays and the clouds diffuse their showers, and the time may come

when the laws which govern the weather may be settled with nearly as much certainty as those which now govern the calculations of the astronomer.

What wonders has science wrought in modern times! But these are only the rudiments of that great plan which Providence has established for the happiness of mankind. "These are but parts of His ways" which we now see,—glimmerings of that boundless exhibition of power, wisdom, and goodness which shall culminate in the perfection of all created things.

X. ORIGINATING NEW VARIETIES.

I commend to you again, as I have done in my former addresses, and shall continue to do while I live, the important and benevolent work of originating new varieties of fruit, both as a means of improvement, and as a substitute for those which have experienced the decline incident to all things of human origin. Our country, and in fact the whole world, has been so thoroughly explored, that we can scarcely expect to discover any very important addition to accidental varieties. Our main source of improvement, therefore, is to be found in the production of new kinds from seed, and I again urge upon you the great importance of continuing your efforts in this most interesting and hopeful department of labor. The acquisitions already made give promise of still richer rewards to him who will work with Nature in compelling her to yield to his solicitations for still greater improvement. Much has already been done, but this branch of science is still in its infancy, and opens to the pomologist a broad field for enterprise. It may require time, and patience, and care to produce a superior variety, but we have the most cheering assurance of the time when every section of our country shall possess fruits adapted to its own locality. There is no better illustration of what can be accomplished, than what has been done, in the production of the various and excellent American fruits, which have been raised since the establishment of our Society. If each member should originate one good variety, adapted to a wide extent of

territory, or even to his own section, he would become a public benefactor. Think of the number of persons in the United States who are now engaged in the growth of fruits. Should each one produce one good variety, a not impossible thing, we should have varieties enough to endure for centuries, adapted to every soil and location in our vast territory.

Let any one visit the nurseries established by Mr. Clapp, in Massachusetts, the originator of the Clapp's Favorite pear, and see the many seedling trees now just coming into bearing, and he cannot but be delighted, as we have been, with witnessing these trees in their youthful vigor, and studying the various forms into which the Bartlett, the Flemish Beauty, the Beurre d'Anjou, the Urbaniste, the Beurre Clairgean, the Beurre Bosc, and other standard varieties have been changed, and he cannot but admit that the daily opportunity for such study would be an ample recompense for all the trouble and expense of raising such trees. But, besides this gratification, is the probability of raising a new variety, which, in one point or another, shall be superior to any before acquired, and which shall be a blessing to the nation. Does any one object, that fruits adapted to cultivation through the country are few and far between? Let him raise a variety which shall be better adapted to his own locality than any before known. Let us have Favorites for Virginia and Georgia, and for all and every State in our nation. If I could feel that I had been the means of inducing our members, or other cultivators, to raise new fruits worthy to bear their names, I should feel that I had lived for a useful purpose.

The importance of producing new varieties from seed is no longer questioned. The fact, that the seed of good varieties will generally produce good offspring, is now well established. These are, however, the natural results which have been derived from fruits already improved; and we can offer no better proofs of the advantages of artificial impregnation than the multitude of improved varieties which have been produced in the vegetable kingdom by this process.

We have learned many of the laws which govern hybridization, and the more we become acquainted with this most interesting art, the more we work with Nature in these efforts for her improvement, the more we shall admire this most perfect and beautiful illustration of the great fundamental law, which has been established from the beginning of time, for the improvement of men, animals, and plants. Well did Linnæus exclaim, when overwhelmed with the discovery of an unknown principle in this most interesting study, "I have seen God passing by;" and well may the contemplation of this law inspire us with the same reverence and delight, and,

"—like conductors, raise
Our spirits upward on their flight sublime
Up to the dread Invisible, to pour
Our grateful homage out in silent praise."

Let us go on, then, developing the wonderful resources of this art. Go on, persevere, and you will leave a rich inheritance to your heirs. Go on, and the time will come when every man shall sit under his vine and fruit-tree, when all our hillsides shall rejoice in the burden of the vintage, our valleys teem with the golden fruits of the orchard, and the passing breeze become vocal with songs of gratitude and praise for these benefactions to posterity.

The increasing interest in the cultivation of fruit at the South induces me to offer a few suggestions in regard to the best means of obtaining varieties suited to that region. Of apples and peaches a large number of superior varieties have already been produced at the South perfectly adapted to that climate; but the supply of fine varieties of the pear is yet inadequate, especially of late-keeping varieties, as the latest kinds grown at the North cannot, when grown in the Gulf States, be preserved beyond autumn. To supply this deficiency, we would recommend the trial of such varieties as refuse to ripen at the North,—Chaumontelle, the Colmar and its sub-varieties, Beurre Rance, Bergamot, Fortune,—which appear to need a longer season than ours to arrive at maturity. These,

and seedlings from these, offer, we think, the best prospect for a supply of late pears in the warmer parts of our country. We would also recommend a trial of the sorts used at the North for cooking, as some of these have proved fine dessert pears in the South. And probably some of the fine old varieties which have decayed at the East, and show signs of the same fate at the West, may, in more genial climates, have their existence so far prolonged as to be among the most desirable.

THE SOCIETY'S CATALOGUE.

Allow me again to commend to your consideration the value and importance of our Catalogue of Fruits. The completion of this work, by embodying the fruits of the Southern and Pacific States, is yet to be accomplished. This has been delayed from unavoidable circumstances, but we hope is now to be done, so that the basis of American Pomology can be established for the generations which are to succeed us. The work is indeed great, but it is a duty that devolves on us, as the representatives of that science which the Society has in charge. In proceeding with it however, we find ourselves met by a difficulty not anticipated at the beginning of our work, arising from the unparalled expansion of our country. In the few years since our catalogue was commenced, several new States and Territories have been organized, and if such expansion continues, as it undoubtedly will, it will be difficult to bring the catalogue, on its present plan, into any reasonable limits. On this point I hope to hear from the chairman of General Fruit Committee, to whom, more than to any one else, we are indebted for the progress already made, and I commend the subject to the thoughtful consideration of all the members of the Society. and especially invite the co-operation of every State in collecting and transmitting to him the information necessary to the completion of our work.

THE INCREASING IMPORTANCE OF FRUIT CULTURE.

The importance and value of our calling in developing the resources of our country, in the occupation of unimproved

lands, adorning our homesteads, enhancing the value of real estate, multiplying the blessings and comforts of life, and promoting a great source of national wealth, cannot be too highly appreciated. The more I reflect upon the progress we have made, the more am I confirmed in the belief that this branch of culture will ere long become second only to the growth of the bread and meat of our country. The enormous production of strawberries and other small fruits, the millions upon millions of baskets of peaches,—not to speak of the apples and pears and other fruits that are now annually produced,—give promise that the time is fast approaching when all classes of society may enjoy this health-preserving condiment as a portion of their daily food. Nor can I refrain from referring once more to the benign influence which our employment has upon the moral and religious instincts of the heart, the refinement of taste, and the welfare of society. Whatever pleasure may be derived from other pursuits, there is surely none that has afforded stronger evidence of a high and progressive state of civilization or a more ennobling influence, than the culture of fruits. “This,” says General Dearborn, “must have been the first step in the march of civilization, while the method of ameliorating their character and multiplying the varieties may be considered as taking precedence of all human efforts in the industrial arts.”

From the day when God gave our father in Eden trees, “pleasant to the sight and good for food,” down to Solomon, who said, “I made me gardens and orchards, and I planted in them trees of all kind of fruits,” and through the successive generations of men, the cultivation of trees and plants has been the criterion of taste and refinement. No object of attachment is more naturally allied to the instincts of the soul, and truly did Emerson remark, “He who knows the most, he who knows what sweets and virtues are in the ground, and how to come at these enchantments, is the rich and royal man.” And what greater benefactions can you leave for posterity than these memorials which shall live and grow, which shall tell of your love of the most beautiful works of nature, kindred, and

home, when you are slumbering in the grave? Far better these for the perpetuation of your memory, and the benefit of the advancing millions of coming time, than all the monumental shafts and pillars of polished marble that ever graced the hero's tomb.

DECEASED MEMBERS.

Since my last report on the decease of members, three of the founders of this Society have been removed by death, "like fruits fully ripened in their season." I allude to Dr. Alfred S. Monson of New Haven, Connecticut, Dr. R. T. Underhill of Croton Point, New York, and Dr. Eben Wight of Dedham, Massachusetts, all three of whom were present and took part in the proceedings of the first meeting, twenty-three years ago.

Dr. Alfred S. Monson died, May 22, 1870, at New Haven, Connecticut, at the advanced age of seventy-four, universally respected and beloved. He was one of the signers of the circular calling the convention which resulted in the organization of our association; was the first Vice-President from Connecticut; and on that occasion read a most able and instructive paper "On the deterioration of certain fruits, and of parasitic agents injurious to vegetation." This paper may be found in the published Transactions of the Society, and gives evidence of the careful investigation and research of its author. Dr. Monson possessed a highly appreciative mind, a refined taste, and a great capacity for enjoyment. Hence his love for fruits and flowers, which was a ruling passion with him through life. He was the first President of the New Haven Horticultural Society, established in 1831,—one of the earliest in this country,—and was a frequent writer on subjects connected with horticulture and rural arts. His address before that Society in 1843, is full of wisdom and beautiful illustrations. His memory will ever be revered and honored by all who knew him.

Dr. R. T. Underhill was also one of the founders of our Society, and his name is borne on the call for its first meeting. He commenced his pomological pursuits at Croton Point about

forty-five years ago, the grape, of which he planted a large vineyard, being a specialty. His experiments commenced with foreign varieties, but these proving a failure he turned his attention to the cultivation of the Isabella and Catawba, then but little known, and so great was his success that for many years he and his brother, with whom he was associated, sent more of these varieties to the New York market than were received from all other sources. He also commenced the manufacture of wine, and at the time of his death had about fifty acres of vineyard, and was also very successful in the cultivation of the plum, of which he gave an account at our last meeting. He was a leading member of the American Institute, and was one of the founders of the Agricultural and Horticultural Society of Westchester county, of which he was the first President. Dr. Underhill was a gentleman of the old school, courteous in deportment and refined in his tastes, and although his age prevented his frequent attendance at our meetings, his interest in our pursuits never declined. As a proof of his fidelity, he came to our last meeting in Philadelphia, and, although at the age of about eighty years, took part in our discussions as he had done in the beginning.

Dr. Eben Wight of Dedham, Massachusetts, another of the signers of the call for the first meeting of this Society, died at his home, where he had carried on his pomological researches during his life. He had long been interested in horticultural pursuits, being an early member of the Massachusetts Horticultural Society, and for a long course of years Corresponding Secretary and Vice-President. For many years he was chairman of the Fruit Committee of this Society for Massachusetts, in which capacity he made many interesting reports, which may be found among our published Transactions. He paid special attention to the apple, of which he had a large and choice collection of varieties; and through his critical observation he became remarkably well versed in the knowledge of this fruit, and introduced several fine varieties to notice. He was a mod-

est and unassuming man, of the strictest integrity, and died as he had lived, universally respected and beloved.

Nor can I close this sad record without adding the name of M. S. Frierson, Columbia, Tenn., who died March 28, 1870. Mr. Frierson was the Vice-President of this Society from Tennessee. He attended our last meeting, and his noble bearing and gentlemanly deportment will long be remembered by all who were present with him. He was by profession a lawyer, and at the time of his death was in practice as an old counselor at Columbia. But what most concerns us is his interest in pomological pursuits, which was strikingly evinced by the part which he took in the discussions of the Society; his remarks being always valuable, interesting, and to the point. He was much interested in fruit culture, and had given particular attention to the hybridization of the nectarine and the pear, with the special view of producing late-keeping varieties of the latter. His experiments were evidently based upon truly scientific knowledge, and at the time of his death had already been the means of producing some valuable new fruits. In a letter written but a few months before his death he says, in speaking of his experiments: "They may turn out nothing. Still, the taste it gives my girls" (who had aided him in conducting them) "for such amusement is worth more than the trouble. The seeds will be carefully planted, and we will wait and see." Noble sentiment! But the fruition of his hopes was transferred to another world, leaving us to wait and see the further results which they may produce here.

These associates have gone to their reward. Their seats in this Society are forever vacant, but their efforts for the advancement of our cause in the early history of our Society will be appreciated more and more as time moves on.

CONCLUSION.

With the deepest sense of gratitude do I rejoice in the presence of a few of the founders of this Society, whose lives have been prolonged to this day. Ere long all those who were pres-

ent at its first meeting, and he who, by your indulgence, has occupied this chair so long, will vacate their seats. Others will fill the places which we now occupy; but our Society and the cause it seeks to promote will live on to bless the generations which shall succeed us.

Long may the members of this Society meet together as friends and mutual helpers, dispensing and receiving good, and may your efforts for promoting this most beautiful of all arts, this health-preserving and life-prolonging industry, be crowned with continued success. May the Society go on conferring blessings on our country, until every hearth-stone and fireside shall be gladdened with the golden fruits of summer and autumn, until thanksgiving and the perfume of the orchard shall ascend together like incense from the altar of every family in our broad land, and the whole world realize, as in the beginning, the blissful fruition of dwelling in the "Garden of the Lord." And when at last the chain of friendship which has bound so many of us together in labor and in love shall be broken; when the last link shall be sundered and the fruits of this world shall delight us no more; when the culture, training, and sorrows of earth shall culminate in the purity, perfection, and bliss of heaven, may we all sit down together at that feast of immortal fruits,

"Where life fills the wine-cup and love makes it clear,
Where Gilead's balm in its freshness shall flow
O'er the wounds which the pruning-knife gave us below."

EXCURSION TO DUTCH GAP.

Many of the guests, accompanied by fifteen or twenty members of the City Council, left the city on the steamer Palisade, Captain Nelson, for a trip down the river. The steamer left her wharf at Rocketts about 5 o'clock, and having on board about one hundred persons, including a few ladies, she pro-

ceeded down to the Dutch Gap, where the visitors had an opportunity of viewing the canal now in process of construction at that point. Other notable places of historic renown were also pointed out, to the infinite delight of the guests, and the war was fought over again in memory and reminiscences. Owing to the late hour of starting, there was no opportunity of landing, and, having "rounded to," the steamer headed for the city, where she arrived at 9 o'clock, nothing having occurred to disturb the pleasure of the trip.

ARRIVAL OF DELEGATES.

H. C. Williams, Fairfax county, Va.; Dollins & Bro., Albemarle county, Va.; T. Shepherd Wright, Fairfax county, Va.; G. F. B. Leighton, Geo. R. Wilson, and L. R. Page, Norfolk, Va.; A. P. Wylie, M. D., Chester, S. C.; H. Leonard, Burlington, Iowa; C. Gillingham and J. H. P. Masore, Fairfax, Va.; J. S. Newman, Sparta, Ga.; W. C. Barry, Rochester, N. Y.; John Miller, M. D. Talbot, Md.; Edward Evans, York, Pa.; John D. Long, Williamsville, N. Y.; J. B. Claggett, Washington, D. C.; D. S. Curtis, *National Republican*, Washington; P. A. Jewell, Lake City, Minn.; William Parry, Cinnaminsin, N. J.; D. W. Herstine, Philadelphia, Pa.; Geo. W. Campbell, Delaware, Ohio; J. H. Foster, M. D., Lancaster Court House, S. C.; W. H. Brawley, Chester, S. C.; A. T. Linderman, Grand Rapids, Mich.; H. B. Ellwanger, Rochester, N. Y.; W. H. Yeomans, Columbia, Conn.; S. H. Evarts, Grand Rapids, Mich.; Samuel W. Noble and R. Binst, Pennsylvania; Hiram Engle and H. M. Engle, Marietta, Pa.; Charles Downing, Newburg, N. Y.; J. W. Manning, Reading, Mass.; L. H. Felton, Arthur W. Felton, and J. E. M. Gilley, Boston, Mass.; Robert Manning, Salem, Mass.; D. A. Scott, E. H. Clark, Francis Kelly, and T. S. Force, Newburg, N. Y.; Chas. Du Bois, Fishkill Landing, N. Y.; Thomas Hogg, New York; Alfred Bridgeman and Walter S. Bridgeman, Newburg,

N. Y., Thos. S. Meehan, Philadelphia ; W. C. Flagg, Alton, Ill.; P. J. Brickhans, Augusta ; E. F. Washburn, Massachusetts ; John G. Barker, Cambridge, Mass.; J. L. McIntosh, Cleveland, Ohio ; Francis Breill, Astoria, L. I.; Geo. Thurter, *American Agriculturist*, N. Y.; H. R. Robey, Fredericksburg, Va.; E. C. McClure, Chester Court House, S. C.; A. Cox, Pulaski, Tenn.; Daniel Smith, J. H. Rickett, J. C. Chapman, W. D. Humphrey, William Gingell, Alexander Young, C. Gilbert Fowler, and Charles H. Cornell of Newburg, N. Y.

SECOND DAY'S PROCEEDINGS.

At half-past 10 o'clock the President called the Convention to order.

The reading of the record of yesterday was omitted, and the President read the following dispatch from Mr. Barry of New York :

Hon. Marshal P. Wilder, President American Pomological Society, from P. Barry, Greeting :

I hope your meeting is a great success. I am with you in spirit.

In answer to which President Wilder, with the approbation of the Convention, sent the following response :

P. Barry, Rochester, N. Y. :

Grand success. Unanimous thanks of Convention. Hopes for speedy restoration to health.

MARSHALL P. WILDER.

COMMITTEE ON NOMINATIONS.

Mr. Flagg of Illinois presented the following report, which was adopted and the nominees declared the officers of the Society for the next two years. The committee recommended that the President be empowered to fill any vacancies in the list of Vice-Presidents for the several States :

President—Hon. Marshall P. Wilder of Massachusetts.

Treasurer—Thomas P. James, Cambridge, Mass.

Secretary—F. R. Elliot of Ohio.

Vice-President—C. C. Langdon, Mobile, Ala.; S. J. Matthews, Arkansas; Warren Foote, Arizona; J. S. Curtiss, California; A. C. Meeker, Colorado; F. Trowbridge, Connecticut; Edward Tatnall, Sr., Delaware; W. Saunders, District of Columbia; Lucius J. Hardee, Florida; William Schley, Georgia; Arthur Bryant, Sr., Illinois; G. D. Nelson, Indiana; James Smith, Iowa; J. A. Stayman, Kansas; J. S. Dawner, Kentucky; Richard H. Day, Louisiana; S. L. Gordale, Maine; W. D. Brackenridge, Maryland; C. M. Hovey, Massachusetts; Samuel Jackson, Michigan; D. A. Robertson, Minnesota; W. B. Wilkes, Mississippi; C. W. Spaulding, Mississippi; Nicholas Waugh, Massachusetts; R. W. Furnas, Nebraska; Charles Downing, New York; Fred. Smith, New Hampshire; William Parry, New Jersey; Dr. Ruyther, New Mexico; Walter L. Steele, North Carolina; R. G. Haliburton, Nova Scotia; George W. Campbell, Ohio; Charles Arnold, Ontario; Francis Simeon, Oregon; Robert Beust, Sr., Pennsylvania; Hugh Allen, Quebec; Silas Moore, Rhode Island; A. P. Wylie, South Carolina; William Heaver, Tennessee; N. G. Mills, Texas; J. E. Johnson, Utah; Richard Bradley, Vermont; G. F. B. Leighton, Virginia; Dr. Strother, West Virginia; J. C. Plumb, Wisconsin; Judge Carter, Wyoming.

Executive Committee—J. E. Mitchell, Pennsylvania; George Shurtur, New York; J. S. C. Hyde, Massachusetts; R. W. Furnas, Nebraska; P. J. Berckmans, Georgia.

The following committees were appointed by the President:

General Fruit Committee—F. Barry, Chairman, Rochester, New York; R. R. Hundley, Alabama; Dr. Richard Thurston, Arkansas; Dr. John Strinlyel, California; T. S. Gold, Connecticut; Edward Tatnall, Delaware; John Saul, District of Columbia; W. S. Littlefield, Florida; P. J. Berckmans, Georgia; O. B. Galusha, Illinois; Dr. Allen Furnas, Indiana;

Mark Miller, Iowa; M. M. Hawsly, Kansas; Z. R. Higgins, Kentucky; S. L. Goodale, Maine; Robert Manning, Massachusetts; A. T. Linderman, Michigan; P. A. Jewell, Minnesota; Wm. Muir, Mississippi; J. H. Masters, Nebraska; George W. Ellwanger, New York; John Clapp, New Hampshire; A. S. Fuller, New Jersey; Joshua Lindsley, North Carolina; Robert W. Starr, Nova Scotia, J. A. Warden, Ohio; D. W. Beadle, Ontario; J. S. Houghton, Pennsylvania; J. S. Childs, Rhode Island; D. H. Jacques, South Carolina; Fred. H. French, Tennessee; A. S. Lipscomb, Texas; Bartlett Bryant, Vermont; Franklin Davis, Virginia; O. S. Willey, Wisconsin.

Committee on Foreign Fruits—Geo. Ellwanger, New York; C. M. Hovey, Massachusetts; Parker Earle, Illinois; Dr. Jno. A. Warden, Ohio; Edwin Hoyt, Connecticut; J. E. Mitchell, Pennsylvania; R. R. Henley, Alabama.

Synonyms and Rejected Fruits—John J. Thomas, New York; John A. Warder, Ohio; W. C. Flagg, Illinois; Robert Manning, Massachusetts; J. S. Downer, Kentucky; W. C. Barry, New York.

Revision of Catalogue—President (*ex officio*); P. Barry, New York; F. R. Elliot, Ohio; Chas. Downing, New York; W. C. Flagg, Illinois; Robert Manning, Massachusetts; Geo. Husman, Missouri; P. J. Berckmans, Georgia.

President Wilder returned his thanks for the honor conferred and this new exhibition of confidence. In reply to the suggestion that he be made President for life, which emanated from an enthusiastic member of the Society, he said that his advanced years might make a change in the Constitution necessary to carry out the idea.

TREASURER'S REPORT.

The report of the Treasurer was read, which showed the receipts for the last two years,—\$1,003 03. Balance in treasury \$124 16.

PLACE OF NEXT MEETING.

Mr. Quinn of New Jersey, waiving what he deemed the

claims of his own State, suggested Boston as the place for holding the regular biennial convention.

Mr. Earle of Illinois said he had come with the intention of inviting the Society to Chicago; but yielded to Boston, and to Boston alone, with the understanding that Chicago be considered as presenting strong claims for the honor of the next convention.

After some few remarks, Boston was unanimously determined upon as the place for the meeting of the Society in 1873.

DISCUSSION OF FRUITS.

Mr. Flagg of Illinois, as preliminary to this discussion, proposed that some rule be adopted with reference to the placing of varieties of fruits in the Catalogue.

Mr. Elliot, in reply, explained his agency in giving a place on the Catalogue to fruits on the representation of others.

Mr. Flagg explained that his criticism was meant for the Society, and not for the Secretary.

In discussing the Red Astrachan apple, Mr. Newman of Georgia stated that it was finely adapted to the climate and soil of Georgia.

Mr. Flagg of Illinois said that it was entirely unproductive in his State.

Mr. Miller and Mr. Wier of Illinois supported the statement of Mr. Flagg.

Mr. Hawsly of Kansas thought that, by grafting, the Red Astrachan could be cultivated to advantage in Kansas.

Mr. Jewell of Minnesota, Mr. Paul of Massachusetts, Mr. Linderman of Michigan, thought it a hardy production.

Mr. Masters of Nebraska thought it could not be recommended for general cultivation.

Mr. Langdon of Alabama moved that the whole subject be deferred until the Committee of Geographical Divisions should make the report.

Mr. Allen of Virginia thought the order of discussion

adopted was the most expeditious way of disposing of the matter.

According to the regulations of the Society, the adaptiveness of the varieties of fruits to different States and localities was indicated by *stars*, two stars indicating entire favorableness of climate and soil. In the discussion of apples, the results of the experience of the fruit-growers in different sections of the country were stated as follows:

American Summer Pearmain:—District Columbia, * * ; Kentucky, * ; Nebraska, * ; Minnesota, * ; Iowa, * ; Kansas, * * ; South Carolina, * ; Illinois, *.

Early Harvest:—Kansas, * ; Nebraska, * ; Alabama * * ; District Columbia, * * ; Kentucky, * * ; South Carolina, * ; Illinois, * ; Virginia, * ;

Early Red Market or Striped June:—Georgia, * ; South Carolina, * * ; Iowa, * *.

Summer Queen:—Georgia, * * ; Virginia, * ; Maryland, * * ; District Columbia, * * ; Alabama, * *. The Summer Queen was referred to a special committee in order to discover its synonyms.

Horse Apple:—Georgia, * *.

Carolina Red June:—Georgia, * * ; District Columbia, * * ; Maryland, * * ; Virginia, * * ; Kentucky, * * ; South Carolina, * * ; Kansas, * * ; Nebraska, * * ; Illinois, * ; Iowa, * (needs careful cultivation there) ; Alabama, * *.

Summer Sweet Bough:—Georgia, * * ; Dist. Columbia, * * ; Maryland, * * ; Virginia, * * ; Kansas, * ; Massachusetts, * ; Alabama, * ; Michigan, * ; Connecticut, * *.

Autumn Sweet Bow:—Kentucky, * * ;

Red Lady Finger:—Kansas, * ; Alabama, * * ; Iowa, * ; South Carolina, * *.

Carter's Blue:—Georgia, * * ; South Carolina, * * ; Kentucky, * * ; Alabama, * * ; District Columbia, * ; Maryland, *.

Buckingham:—Georgia, * * ; South Carolina, * * ; District of Columbia, * ; Maryland, * ; Virginia, * *.

Taunton:—Georgia, * * ; Kentucky, * *.

Ben. Davis:—Georgia, * * ; Kentucky, * * ; Alabama, * ; District of Columbia, * ; Virginia, * ; Nebraska, * * ; Kansas, * * ; Illinois, * * ; Iowa, * *.

Cannon Pearmain:—District Columbia, * * ; Maryland, * * ; Virginia, * * ; Kansas, * ; Kentucky, * *—1,795. Introduced by Dr. Darnaby, of Virginia, into Kentucky.

Holly:—Georgia, * ; Kansas, * ; Kentucky, *.

Junaluskee:—Georgia, * ; Kentucky, * ; Alabama, * *.

Mangum:—Kentucky, * * ; Georgia, * ; Alabama, * * ; Virginia, * ; Kansas, * *.

Nick Jack:—Virginia, * * ; Georgia, * ; District of Columbia, * * ; Maryland, * * ; Kentucky, * ; Alabama, * * ; Southern Illinois, *.

Press Apple:—Georgia, * * ; District of Columbia, * * ; Maryland, * * ; Kansas, * ; Virginia, * ; Southern Illinois, * * ; South Carolina, * ; Iowa, *.

Mr. Allen stated that this tree was starred for Virginia on account of its quality, but that it was unproductive in Virginia.

Mr. Miller thought it was the best tree in Iowa.

Dr. Hawsly of Kansas thought that budding made it a valuable tree.

Romanite:—Georgia, * ; Virginia, * * ; Dist. of Columbia, * ; Maryland, * ; Kansas, * * ; Kentucky, * ; Nebraska, * ; Illinois, * ; Minnesota, *.

Shockley:—Kentucky, * * ; Georgia, * * ; promising in Southern Illinois ; District of Columbia, * * ; Maryland, * * ; Iowa, * * ; Alabama, * * ; South Carolina, * *.

Stevenson's Winter:—Georgia, * * ; Alabama, * *.

Yates:—Middle Georgia, * *.

Large Stripe Winter Pearmain:—Georgia, * * ; Kentucky, * * ; Kansas, * *.

White Winter Pearmain:—Illinois, * ; Virginia, * ; Kansas, * * ; South Carolina, * * ; Nebraska, *.

Mason's Stranger:—Virginia, * *—eastern and southern.

Wine Sap:—Virginia, * *; District Columbia, * *; Maryland, * *; Michigan, *; Kansas, * *; Northern Virginia, * *; Iowa, * *; Kentucky, * *; Southern Illinois, *; Illinois, *; Nebraska, * *; New Jersey, *.

Rall's Janet:—Virginia, * *; Maryland, * *; District Columbia, * *; Illinois, *; Kansas, * *; Kentucky, * *; Nebraska, * *; Iowa, * *; Illinois, *; Southern Illinois, * *.

Maiden's Blush:—Virginia, * *; Kansas, * *; New Jersey, * *; Massachusetts, *; Maryland, *; Pennsylvania, * *; Kentucky, *.

Fallowater:—Virginia, * *; Illinois, * *; Kansas, * *; New Jersey, * *; Pennsylvania, * *; Iowa, * *; Michigan, * *.

Albemarle Pippin:—Virginia, * *; Kansas, * *.

York Imperial:—Virginia, * *; District Columbia, *; Maryland, *; Pennsylvania, * *.

During the morning session Mr. Allen, President of the Virginia Horticultural and Pomological Society, invited the American Pomological Society to a banquet to be given in the evening at Assembly Hall. The invitation was cordially accepted.

AFTERNOON SESSION.

The President called the Convention to order at half-past 3 o'clock.

COMMITTEE ON PREMIUMS ON GRAPES.

The Committee on Grapes presented the following report:

We, the undersigned, appointed to award premiums on American grapes, as per special premiums contributed by Charles Downing, Gen. R. L. Page, Hon. John B. Whitehead, Messrs. Downward, Anderson & Co., and Messrs. Chas. T. Wortham & Co., respectfully submit the following report:

1. No collection of twenty varieties of American grapes found.

2. No half-bushel of flowers grapes found.
3. Premium of twenty dollars awarded to John Hopkins, Wilmington, N. C., for half-bushel of Scuppernong grapes, who also exhibited a half-bushel of large black grapes, which he called Muscadine Superior, which he claims as a seedling of his.
4. Premiums awarded to Michigan State Pomological Society of ten dollars for best twelve bunches of Delaware grapes.
5. Premium of ten dollars awarded to J. W. Porter for best twelve bunches of Norton grapes.

WILLIAM BARRY,
G. F. B. LEIGHTON.

SPECIAL PREMIUMS.

The Committee on Special Premiums for the best collection of apples, pears, and grapes, reported that the only entry, meeting the requirements of this premium, is that from Nebraska, and respectfully recommend the premium of \$100, offered by the Virginia Agricultural Society.

W. SAUNDERS,
W. B. SMITH,
P. J. BERCKMANS,
Committee.

On the reading of the report, Col. Furnas of Nebraska arose and stated that the Nebraska Society donated the American Pomological Society the premium which had been awarded them.

The donation was accepted, and three cheers proposed and given for Nebraska.

MISCELLANEOUS BUSINESS.

The following was offered by Mr. D. B. Wier of Illinois:

Does an apple, pear, plum, peach, or other fruit tree one or two years from bud or graft, with the head started at point indicated by nature, or, in other words, that has never been trimmed or pruned upon when planted in orchards, ever require any pruning whatever (to give the best results), and, if so, at what time of its life?

Referred to a committee, namely: William Saunders, District Columbia; Dr. Slayman, Kansas; D. B. Wier, Illinois; W. C. Flagg, Illinois; Thomas Meehan, Pennsylvania.

The Chair appointed the following committee to report on mildew at next biennial meeting: Thomas Meehan, Philadelphia; W. Saunders, District Columbia; W. C. Flagg, Illinois.

One Pear-blight, the following committee was appointed to report at next biennial meeting: P. J. Berekmans, Georgia; Thomas Meehan, Philadelphia; Robert Manning, Mississippi; William Saunders, District of Columbia.

On Concussion—Committee: Messrs. Bragden, New York; Thurber, New York; Quinn, New Jersey; Herstine, Philadelphia; W. Schley, Georgia,—to report this morning.

Mr. Newman of Georgia offered a resolution asking that a committee be appointed to report upon the expediency of petitioning Congress to repeal the tax on distillations of fruits. The resolution was rejected.

Mr. Elliot of Ohio moved that a committee be appointed to petition Congress for \$20,000 as a permanent fund, of which the Society shall use nothing but the interest for twenty years.

Carried, and the President and Secretary authorized to make appointment of committee.

DISCUSSION ON PEARS.

Bartlett Pear:—Georgia, * *; Kentucky, * *; Alabama, * *; Virginia, * *; Iowa, * *; District Columbia, * *; Maryland, * *; Illinois, * *: Nebraska, * *; Rhode Island, * *; Florida, * *;

Belleluératem:—Georgia, * *; Illinois, * *, for family use; Kansas, * *, for family use; Michigan, *, for home use; Rhode Island, * *, for family use; Nebraska, *, for family use; Alabama, * *, for family use; South Carolina, *, for family use; Connecticut, * *, for family use.

Bloodgood:—Illinois, *; Rhode Island, *; South Carolina, *; District Columbia, *; Maryland, *; Kentucky, * *; Virginia, *.

Buffam:—Virginia, *, for family use; Kentucky, *; District Columbia, *; Maryland, *; Rhode Island, *; Illinois, *.

Doyenne de Paris:—Virginia, *; Illinois, *; Kentucky, *; New York, * *; Rhode Island, *.

Flemish Beauty:—South Carolina, * *, for home use; Nebraska, * *; Kansas, * *, home use; Alabama, *; Illinois, * *; District Columbia, * *; Maryland, * *; Kentucky, * *; Virginia, * *; Michigan, * *.

King Sessing:—District Columbia, *; Rhode Island, *; Maryland, *; Virginia, *; Illinois, *.

Rastizer:—Illinois, *; Maryland, *; Virginia, *; Rhode Island, *; Massachusetts, *; Connecticut, *; New Jersey, *.

Seckel Pear:—Michigan, *; District Columbia, * *; Massachusetts, * *; Virginia, * *; Maryland, * *; Illinois, * *; Nebraska, * *; Kansas, * *; New Jersey, *; South Carolina, * *; Pennsylvania, *.

Urbanist:—District Columbia, *; Maryland, *; Rhode Island, *; Massachusetts, *; Virginia, *.

Beurre Bosc:—District Columbia, * *; Maryland, * *; Massachusetts, *; Illinois, *; New Jersey, *; Michigan, *.

Howell:—District Columbia, * *; Maryland, * *; Virginia, * *; Iowa, * *; Illinois, * *; Nebraska, * *; Pennsylvania, * *; Michigan, *.

Beurre d'Anjou:—Massachusetts, * *; Connecticut, * *; Maryland, * *; Dist. Columbia, * *; Kansas, * *; Iowa, * *; Illinois, * *; New York, *; South Carolina, * *; Michigan, * *; Western New York, * *.

Beurre Clairgeau:—District Columbia, * *; Maryland, * *; Illinois, *; Virginia, * *; Georgia, * *; South Carolina, * *; New Jersey, *; Connecticut, *; Massachusetts, *; Michigan, *.

Beurre Diel:—Kansas, * *; District Columbia, * *; Maryland, * *; South Carolina, *; Virginia, * *; Kentucky, *; Nebraska, *; Iowa, * *.

Ester Beurre:—Iowa, * *; Northern Virginia, *; Southern Virginia, * *.

Beurre Superfine :—District Columbia, * * ; Massachusetts, * ; Georgia, * * .

Dayeme Barroek :—District Columbia, * ; Maryland, * ; Illinois, * ; Iowa, * .

Duchesse d'Angouleme :—Virginia, * * ; South Carolina, * * ; Illinois, * * ; District Columbia, * * ; Maryland, * * ; Kansas, * * ; New Jersey, * * ; Pennsylvania, * * ; Connecticut, * ; Georgia, * * .

Lawrence :—Two stars for most of the States.

Onandaga :—One star for most of the States.

Louise Bonne de Jersey :—Kansas, * ; Rhode Island, * ; Kentucky, * ; Iowa, * ; Connecticut, * ; Massachusetts, * ; Illinois, * ; South Carolina, * ; District Columbia, * ; Maryland, * .

Sheldon :—Maryland, * * ; Virginia, * * ; Illinois, * * ; Kentucky, * ; Alabama, * ; Massachusetts, * * .

On motion, the Convention took a recess until 8 P. M.

NIGHT SESSION.

The Society met, pursuant to adjournment, at 8 o'clock, Mr. Parker Earle of Illinois in the Chair, and Mr. D. B. Wier of Illinois, Acting Secretary.

On motion of Dr. Hawsly, the subject of pear culture was discussed, Mr. Saunders of District Columbia leading off, and in the course of his remarks, touching upon the pruning of pear trees, mildew and its antidotes,—sulphur, lime, and carbolic acid as having been used with good results. With carbolic acid, the speaker stated that he had begun his experiments by using one drop of the acid to four hundred drops of water, and finally using one ounce of strong carbolic acid solution. The origin of the disease he did not know, but it frequently attacks the branch.

This is removed by cutting away the blighted portion. When it attacks the stem, however, the tree is gone, and this

wash was intended for the stem and used with great success. He had never examined the roots of the tree, and did not know that the disease attacked that point first. He thought, however, that the great object in all fruit culture was to secure maturity in growth before the winter should set in.

Professor Taylor, of the Agricultural Department, followed Mr. Saunders, and, in a learned and interesting address, explained the microscopic observation of the effect of water upon fruits, their fermentation, and the formation of fungi, the origin of which he regarded to be atmospheric influence chiefly.

Dr. Hawsly of Kansas said that he had been much interested in the remarks of Professor Taylor, but what he wanted to get at was the origin of pear blight. One theory was the "fungi origin;" another that it was vegetable apoplexy, and that wet seasons produced this more than anything else. The foundation of this disease, he thought, was laid the year before its development. In 1844, he had a young orchard, and on one occasion there came on a heavy north wind and rain, which was followed by snow, and finally with sleet. The next morning the ice was an inch thick upon all the trees. When the spring came, he went out to trim up the orchard, and on nearly all the trees, he found a yellow ring. The cause of this he did not know, but on every tree where the disease or ring appeared, the graft was entirely destroyed and dead. The inevitable conclusion was that the intense cold had produced this, but what the disease was he did not know. When the spring came on and the young trees yet wet with the winter storms were subjected to the heat of the sun, this it was, he thought, which had done the work. But the disease was attributable, he believed, equally to cold as heat. He had been an apple and pear grower for more than forty years, and each year his conclusions in relation to pear blight had been strengthened,—that it originated either from intense heat or cold.

Mr. Wier next gave his experience of the diseases to which

the trees were subjected, the attacks of the worm, the formation and spread of the "fungi."

Mr. Smyth of Syracuse, N. Y., thought the trouble was in the seedling. He had noticed the blight in the wood about three weeks ago. But what he wanted to get at was, why the blight seemed to spread as it did?

After some further discussion, the convention adjourned to meet in the morning at 9 o'clock.

THIRD DAY.

The morning session, as well as all the rest of the meetings of the Society for this day, we were unable to attend, for the following reasons: The exchange of Michigan fruit for collections from other States, to bring home for exhibition at the Second Annual Fair of the Michigan State Pomological Society, was effected the evening before, and in order to arrive here in time for our own Fair, we were obliged to forego the pleasure of attending the sessions of the day, as before stated, and attend to the package and shipment of these collections, of which Marshall P. Wilder sent 230 varieties of pears, a large number of varieties of the same kind of fruit from Smith, Clark, and Powell of New York. Southern Illinois, which was so well represented by Mr. D. B. Wier and others, decided to send her collection entire. North Carolina, South Carolina, Virginia, Connecticut, New York, Massachusetts, California, Kansas, Nebraska, and other States contributed to the collection, which it is deeply regretted could not have been seen by the people who visited our Fair, in the same state of perfection as when it left Richmond.

The delay of the express company, however, was such that it was found upon taking the collection from the packages that many specimens were injured so as to sadly detract from their appearance, while a large amount was entirely destroyed,

yet the interest displayed in such specimens as were presentable was ample proof that the efforts made to secure the representation of foreign fruits at our Fair was in no way a failure, and that in the future the exhibitions of our Society may be embellished with the results of the labor of our brothers of other States. That our fruits may in return be sent abroad, and that the experience of this endeavor may be conducive to the happy consummation of these results, is the sincere wish of your delegates.

A. T. LINDERMAN.

H. S. EVARTS.

Mr. H. S. Evarts, who bore his own expenses and who rendered valuable aid throughout the tedious and tiresome journey, is especially entitled to the thanks of the Society.

The expenses of the trip were :

For fare	\$46 45
Express and transfer of same	6 50
Express prepaid on collection on return	14 50
Express charges paid on collection of apples	5 95
Hotel and meals	19 90
	<hr/>
	\$93 30

A. T. LINDERMAN.

REPORTS, ESSAYS,
AND OTHER PAPERS,
COLLECTED BY THE SECRETARY

But not Read before the Society.

REPORT OF THE SOUTH HAVEN POMOLOGICAL SOCIETY.

OFFICERS FOR 1871.

President—Norman Phillips, South Haven, Michigan.

Vice-President—C. H. Wigglesworth, South Haven.

Secretary—C. T. Bryant, South Haven.

Treasurer—C. J. Munro, South Haven.

Executive Committee—I. S. Linderman, John Williams, H. E. Bidwell, J. Lannin.

SOUTH HAVEN, MICH., Dec., 1871.

Mr. A. T. Linderman, Sec'y Mich. State Pomological So.:

DEAR SIR,—In compliance with your favor, asking us to contribute items or thoughts in regard to fruit-growing in this section, to be embodied in your “Annual Report,” our Society appointed Messrs. O. C. Lathrop, H. E. Bidwell, A. S. Dyekman, and the undersigned, to prepare a report.

The statements of these gentlemen, on the several topics, I transmit herewith:

By way of introduction, it falls to me, to write briefly of our organization, and its work. Convinced that our superior advantages, of climate and soil, for growing fruit, and facilities for shipping to the best markets, indicated that fruit culture was to be the principal business of this community, and justified us in striving for the highest attainments, and in expecting the greatest possible success and profit, in this branch of agriculture, as a reward for well directed effort, those interested, in December, 1870, organized the South Haven Pomological Society; the specific object of which, is, “to develop facts,

promulgate information as to the best methods of growing the best varieties of fruits for our vicinity, and for our own profit and improvement."

This Society has steadily increased in members and interest. The meetings are well attended; the discussions are spirited; the expressions of opinion, and statements of experience, candid; the feeling harmonious; and we are more and more assured that our interests are mutual, and that the greatest obstacles in the way of making fruit-growing a constantly profitable business may be overcome by co-operation.

The first important step in this direction, was the adoption of a trade-mark, which represents the credit of the Society, as a warrant that the package of fruit to which it is attached is first quality of its kind, sufficiently ripe, and uniform throughout, as it appears on the surface. All members of the Society can use the mark, being responsible to the Society for its proper use. It was used the past season, and no complaints received.

Our Society, last fall, gathered a large collection of fruit, which was exhibited at the State Agricultural Society's Fair, at Kalamazoo, and a portion of it at the Exposition of the State Pomological Society at Grand Rapids, and also at our county fair.

Whatever may have been the judgment of others in regard to this collection, it had a marked effect on ourselves, in reassuring us of the capacity of our soil, and suitableness of our atmosphere, to so many varieties of fruit, and in strengthening our ambition to excel.

The collection embraced about ninety varieties of apples, thirty varieties of pears, forty-two varieties of peaches, seven varieties of quinces, over forty varieties of grapes; also almonds, nectarines, figs, and cherries, and a variety of small fruits preserved.

Opinion here, however, is not in favor of planting many varieties of each class of fruit.

Apple orchards, for market, are set principally with from

three to five varieties, almost always including the largest portion of Baldwins and R. I. Greenings.

In setting a peach orchard, the judgment of the most experienced is in favor of setting only enough varieties to give, as nearly as possible, an even supply, from the earliest to the latest.

A fair proportion of pear trees are being planted, but there are no orchards old enough to sufficiently test their profitability. The fruit thus far proves to be very fine.

Quinces seem to do well here.

Plums are not much planted, although we have a great deal of soil that is suited to them.

Cherry trees grow finely, and produce fair crops. Several small orchards have been recently planted.

Our soil, being very much diversified, is suited to all the small fruit.

The plantations of such, except grapes, have not been large; but, now that our facilities for marketing are being established, more are being planted.

Referring you to the accompanying papers for more extended and specific information, I am

Yours, very respectfully,

C. T. BRYANT, *Secretary*.

CLIMATE.

In theory, we hold that a point, situated on the east side and at the widest point of Lake Michigan, must have advantages of climate; the prevalence of westerly winds bringing a lake atmosphere on our shore, not subject to extremes of heat in summer and cold in winter.

This theory is thus far sustained by facts.

The coldest point ever touched by the thermometer, at our place, within the recollection of civilized man, was in the winters of 1856-7,—at nine degrees (9°) below zero; since which time the coldest point was seven degrees below zero,—January

1st, 1864. The summer following each of these winters brought abundance of fruit, on all bearing trees. Ordinary winters the thermometer does not reach zero.

The wood even of the peach and all well ripened grape-wood has not been known to winter-kill. Then, the fact of less fall of rain along the lake border, with a certain degree of unfailing moisture taken up by the air in its passage of the lake, secures a more even supply, promoting the healthful growth of plants, and greatly avoiding the mildew and other diseases.

As a remarkable instance of our lake protection, it is said that when the thermometer was at seven degrees below zero here in January, 1864, it was as low as twelve degrees below at Corinth, Mississippi, and twenty-seven degrees below at Milwaukee, Wisconsin.

SOIL.

Our soil is varied through all degrees, from light sand to heavy clay loam, with frequent admixture of gravel,—everywhere the surface or subsoil slightly impregnated with Iron.

These soils, in conjunction with various exposures, which our gently undulating surface presents, have their adaptation to the culture of various fruits.

PEACH CULTURE.

With proper management, the peach crop here seems about as certain as the return of summer. With the encouragement of this fact, the orchard interest is being rapidly extended.

But there are conditions essential to success.

First. Varieties to Plant.—It is important to have a regular succession from early to late.

Hale's Early has already acquired a bad reputation in market, which, as it has many good qualities in tree and fruit, we have been slow to concede it deserves.

Serrate Early York is worthless for orchard.

Wheeler's Early, Coolidge's Favorite, and Large Early York have good qualities. But we have no first-class market peach earlier than the Crawford.

Thence we have a succession of good peaches as follows:

Early Crawford, Early Barnard, Jaques Rareripec, Late Crawford, Stanley's Late Smolk and Keyport White.

There are some new varieties not thoroughly proven.

Second. Where to Plant Them.—The soil must be well drained. The best locations are elevated grounds within two miles of Lake Michigan, although the fruit belt extends about fifteen miles inland.

Third. Cultivation.—Plough early, then follow with light cultivation (especially in dry weather) until the picking of fruit.

Fourth. Pruning.—Prune to admit air and light to all parts of the top; this will allow the proper growth and maturity of fruit-bearing wood.

Fifth. The Borer that infests the roots no doubt deserves death. After the first search, if the roots of the tree are left exposed for a day or two, it will be easy to find the Borer, on a second examination, by the indications of new work.

Sixth. Destruction of Curculio.—This unmitigated pest—the *Little Turk*—gives us a deal of trouble. Mr. Ransom's new method of catching with traps is a great improvement, as thousands are taken before we can catch them with the sheet and jarring process.

It is important to have the ground well smoothed about the tree a distance of three feet. Then place the pieces of bark or chips flat on the ground and close to the trunk of the tree.

If you go not too early in the morning you will find them adhering to the underside of the barks, or sometimes in the dry dust underneath.

A boy, as he catches, can put them in a vial, where they may be killed by filling the vial with hot water. Pour them on a white sheet, let them dry, then count where you desire to pay for catching by the hundred.

We would also advise using the sheets, that by all means we may insure success.

On the sheets there are caught, besides the *Curculio*, a world of worms, bugs, and ants,—especially a dark-colored lively rascal among worms that eats into ends of the new growth.

Not less important than the foregoing is judicious thinning of fruit.

A. S. DYCKMAN.

OPEN-AIR FIG CULTURE.

On account of the uniformity of heat and moisture here, on warm, rich, dry, sandy soils, the fig grows with very little care; indeed, I have never seen a curled or yellow leaf. Even cuttings bear fruit the first season if taken from bearing plants. These yield, however, but one crop the first season, and the figs ripen nearly as soon as on the old plant; because they root so readily. Even the fruit buds start with the leaf buds, yet they have not sufficient strength at the same time to develop fruit buds for a second crop the same season, as the stronger plants do.

The first crop ripens about the 1st of July, and the second crop, the middle of September. Fresh figs are very rich, and consequently perishable, but can be marketed if used the second day, or they can be dried or preserved. The foilage here is free from insects or disease, and the wood ripens early. There is no especial care necessary in their cultivation, except protection in winter. The easiest method I have found, is to take them up in the fall and bury them in this manner: dig one and lay it on its side in the hole where it was dug out, then dig the next one, throwing the dirt on the first one dug, and so on. Lift, prune, and set back in the spring. This does not injure them nor keep them from fruiting,—even the small green figs left on, mature the following season. The variety I prefer, is the White Marseilles or Fig of Commerce.

H. E. BIDWELL.

GRAPE CULTURE AT SOUTH HAVEN.

On account of the width, depth, and lay of our lake and the adjoining lakes, our average summer temperature is lower than in any other section of our country.

The mean summer temperature of Kelly's Island, in Lake Erie, is between 72 and 73 degrees. That of the Pleasant Valley Vine region, in New York, is higher; and the Missouri river bluffs still higher; while ours is lower than these principal grape regions, and near 70 degrees; hence low-tempered varieties of grapes succeed best with us.

The *Vitis Bordifolia* (Winter or Frost Grape), having the lowest vital temperament, of which the Clinton is the most familiar type, thrives with the least of care with us. The marked characteristics of this class of grapes, which includes Clinton, Taylor, and Alvey, are tough skins, sour, fibrous pulp, and large seeds; desirable when compared to the fruit of the wild vine, from which they originated.

Now, while our summers are comparatively cool, not often higher than 96 degrees, our winters are proportionately warm, seldom ever going below zero, at this place; therefore the *Vitis Æstivalis* (or Summer Grape), of which the Delaware is the lowest tempered variety, though less hardy as a class, succeed also well with us. The characteristics of this class, which includes Delaware, Norton's Virginia, Cynthiana, and Herbermont, are thin skins, sweet, juicy, but wanting in flavor.

From these same climatic influences, to which I have previously alluded, to wit: mildness of winter and coolness of summer, may be added uniformity of moisture, allowing us to grow the earliest varieties of the Labrusca family, of which the Iona is the highest type. The characteristics of this class are meaty structure and aromatic flavor. The Isabella, Concord, Catawba, Diana, and Iona are members of this class, all more or less liable to mildew in other localities which are more liable to the extremes of temperature and moisture.

Another class of grapes I will mention,—crosses of these

forementioned classes,—of which the Walter is Nature's best assisted effort, a cross of the Delaware with Diana, combining the sweetness of the Delaware with the flesh and aroma of the Diana; excellent for table, wine, or raisins.

Another new class I will briefly allude to, seedlings of the *Vitis Vinifera* (or European grape), which includes Weehawken, a fine early white grape, and the so-called Allen's Hybrid, a seedling of the foreign Chasselas, a choice early variety which also succeeds here.

Many, no doubt, will ask, How came this great improvement over the native varieties? One word answers the question,—cultivation. If you plant the seed of the native grapes and leave them with neglected care, natives are produced again; but transplant the native parent from the thicket into your garden and give it all the requirements of growth, and mark the result. You will find stored in the fruit an increase in quantity and quality of plant-food from the seedling. Plant the seed beside the parent vine, and give it also plenty of plant-food, and watch for the result when it comes to fruitfulness. You will find an improvement over the parent. Now observe every step in advance, for quantity and quality of fruit call upon you for an increase in quantity or quality of plant-food or cultivation; hence the lower grade of these previous classes, Clinton, Norton's Virginia, and Concord, will thrive with comparative neglect, while choice Alveys, Herbemonts, and Jonas require the best of care.

There is still another class of grapes of higher excellence, especially adapted to this climate, because, without advancing step by step in cultivation,—at the risk of losing vitality,—they at once combine the hardihood of our natives with the superior richness of the foreign grape. These include Rogers', Arnolds', and Underhill's Hybrids. Prominent among these for this section are Salem of Rogers', Antuchon of Arnold's, and Croton of Underhill's Hybrids. The best of these is the Croton, a cross between the Delaware and Chasselas de Fon-

tainebleau, a grape in which I have failed as yet to find a fault. Other choice varieties are being added to this class, which will make it the most desirable for easy cultivation. But what is cultivation, our most important means of success? Simply furnishing the vine with an abundance of plant-food, the prunings of the vine, fallen leaves, and plaster, frequently stirring the soil so that heat and moisture can assist the roots in collecting food, also pruning and training the vine to the light to enable it to digest and assimilate the sap to the production of healthy foliage and choice ripe grapes.

While we are exempt from late-spring and early-fall frosts and mildew, we are some annoyed with insects, though less than in other localities. The thripp, on some varieties, becomes quite numerous by fall, if unmolested. A few applications of a weak solution of carbolic acid soon destroys them. This is also destructive to the gall louse, which has made its first appearance here this season. The steel-colored beetle, which eats holes in the buds, and the brown spotted beetle, which eats the leaves, are kept in check by the bluebird and woodpecker. We have local benefits of the greatest importance. The cold of winter, nor heat of summer, never weakens the vitality of the vine, nor kills the primary fruit buds, though left exposed on the trellis, so that pruning can be done during our leisure. Our open winters enable us to prepare and set stakes, and in early spring to dig and set vines and tie the canes in proper place, and, in our delightful summers, to cultivate thoroughly; and in our long, beautiful autumns, to market our grapes, make wine, or raisins, to the best advantage.

The foregoing facts demonstrate that that portion of Michigan contiguous to South Haven, through its superior soil and climatical influences, is equaled by no locality in the West or Southwest as a fruit region; if indeed, it can be excelled by the pomonal valleys of California, herself. But, if the Pacific slopes can raise some varieties of fruit that Western Michigan cannot, yet fruit culture in that country is rendered unprofitable, to a very great extent, for want of a remunerative market.

Let us see what are the marketing advantages of South Haven.

It will be noticed, by glancing at the map of Michigan, that this town is located at the mouth of Black River. It is a village of about two thousand inhabitants,—having increased to that number from four hundred, within the last four years. Four years ago she had no harbor, the shifting sands of Lake Michigan blockading the mouth of her river, so that it was accessible only to the smallest sailing craft. Now, by means of plying, she has a harbor capable of accommodating the largest vessels and steamers that ply the Great Lakes.

Until within a year or so, her nearest railway station was thirty-two miles distant, while now she has a railroad running in almost an air line to Detroit, with four trains per day, under the auspices of that great and wealthy corporation, the Michigan Central R. R. Co.

It will thus be seen that the water and rail facilities are such, that by tracing a line to Detroit, to Milwaukee, and Chicago, from South Haven, gives her the least average distance to those three great marts of the West of any port in the fruit belt of Western Michigan; thus giving her the choice of those three great fruit markets should any one of them, at any time, become temporarily glutted.

It is of the utmost importance, in the transporting to market of peaches, strawberries, and other perishable fruits, that they be put down at the door of the consumer in the quickest and gentlest manner possible. The fruit of South Haven, placed on board the steamer in the evening, is borne, by the undulating motion of the boat, to Chicago, in eight hours, through the cool of the night, and arrives as fresh and firm as when gathered the afternoon before; presenting a marked contrast with that shipped from Southern Illinois, which has been jolted for twenty four hours over from two hundred and fifty to three hundred miles of railroad; and, need I add, presenting as equally marked a contrast in the price of the respective fruits.

Should the fruit-shipper of South Haven desire to save the commissions of Chicago men and other intermediate parties, the railroad communications are now such that he can distribute his fruit himself among the principal cities of Northern Illinois, within twenty hours from time of shipment, while Sioux City, Iowa, and St. Paul, Minn., can be reached within forty hours; to say nothing of the facilities of supplying Wisconsin and Northern Michigan Peninsula.

Hence we see that an ample market is already at hand for all the fruit that can be grown in the vicinity of South Haven, while the vast network of railroads that is yearly extending itself over the whole Northwest will furnish such increased marketing facilities, that were every fruit-grower, for years to come, in the great peach belt of Western Michigan, to raise nothing but peaches alone, it would be impossible to overdo the culture of that popular esculent, in the vicinity of South Haven, so varied are her marketing facilities.

O. C. LATHROP,

H. E. BIDWELL,

A. S. DYCKMAN,

Committee.

PEAR TREES.

SHALL WE PLANT DWARFS, OR STANDARDS?

BY B. HATHEWAY, LITTLE PRAIRIE RONDE, CASS CO., MICH.

Owing to the more trying character of our climate, and, perhaps, other causes in connection, the pear does not do as well, generally, throughout the West as at the East, especially in the States bordering on the seaboard.

For the same reason here, any weakness of trees, whether constitutional or produced by wrong methods of propagation, culture, or pruning, will be more certain to manifest itself.

While in some few localities the pear as a dwarf may be found to succeed, its planting generally throughout the West is being abandoned, I believe; and I am constrained to say, from my somewhat extended experience in their propagation and culture, and from my observations in this and other Western States, that standard trees are always to be preferred; that dwarf trees, as such, are a failure for all this Western country.

A few of the reasons that have led to this conclusion I will briefly give.

It has comonly been urged in the interest of the dwarf, that it will bear sooner than a standard, or pear on its own roots. This, if true at all, is only to a limited extent, and is always of doubtful practical value. Anything that will check the natural vigor of the pear or other fruit tree, will incline it to the formation of fruit-buds. This is a well observed and conceded fact. And it is sometimes desirable to induce such condition in the pear—and other fruits no less—as will tend to fruitfulness, sooner than would result from the uncontrolled habit of the tree.

Still, in the light of a wide experience, I am compelled to believe that the usual way of putting the pear on the quince is not the best manner of attaining this end, even if it is, under any circumstances, desirable or admissible.

Nor have I found that dwarfs, as a rule, have, to any extent, borne fruit earlier than standards of same kinds.

Varieties like the Urbaniste and Glout Moreceau, often stand ten years as dwarfs—so called—before fruiting, while the Bartlett and some others will bear as standards in three or four years.

It has been claimed that dwarfs are more exempt from blight than standards, but in my experience the reverse has been true. The proportion of dwarfs to standards that have died from blight with me have been more than three to one. Of some varieties that have blighted, I have only dwarfs, so I am now unable to say what they would have done as standards. Among these are the L. Bonne, and Duchesse. I have, however, lost only one tree with blight, that was originally a standard. Several have been affected, but by timely, and thorough cutting back, I have saved them.

There is, in connection with this subject, one very significant fact. The hundreds of dwarf pear trees that have been set throughout this region, so far as I can learn, that have escaped accident and blight, are either healthy bearing trees with pear roots superinduced on the quince, or, failing to make such roots, they have died outright, or are prolonging a most precarious existence, for the simple purpose, as it would seem, of rebuke to those horticulturists that, like other and possibly no wiser men, "have sought out many inventions."

In confirmation of the above I will give a brief summary of my experience, and the results of my observations, and that of others,—some of the best fruit-growers in the West.

I have a pear orchard, planted ten years or more, two hundred trees,—thirty-five standards, the rest dwarfs. The soil is a strong loam, with stiff subsoil,—counted the best for pears,

I believe. It was thoroughly underdrained with tile, and in addition, large holes were dug three and four feet across, and clear through the hardpan. Standards were set twenty feet apart, and alternated with dwarfs, and a full row of dwarfs between standard rows and on either side, making them stand ten feet distant, mostly set to one-year trees. Standards and dwarfs trained alike, with low heads.

Now for the result. All the dwarfs that have done well, that are healthy and vigorous, are, practically, to-day standards, having pear roots in abundance; while those that have not made such roots are in a most suggestive state of decline.

This is not a matter of speculation and supposition, but of critical examination, and I have no doubt but the majority, if not all the healthy productive, so-called, dwarf pear trees in the West, at least, would give abundant evidence, if consulted, of the truth of this statement.

A few years since I had occasion to move one row of ten trees. They were the *Beurre d'Anjou*, and, when planted, on the quince root. All of these, but one, had pear roots, and were healthy, vigorous trees. The one had failed to make pear roots, and remained stunted and weak. It is a very easy matter to tell whether a tree has pear roots, or only those of the quince, by merely taking hold of it. In the former case it will be found firmly braced, while in the latter it will indicate a manifest want of lateral support.

That my experience, if counted in any wise positive, may not be attributed to the selection of any particular variety or varieties, I will give a list of the leading sorts: *Beurre d'Anjou*, *Louise Bonne*, *White Doyenne*, *Bartlett*, *Beurre Diel*, *Buffam*, *Winter Vitis*, *Beurre Eastes*, *Lawrence*, *Seckel*, *Duchesse*, *Onondaga*, *Sheldon*, *Clapp's Favorite*, etc.

I find a great difference in varieties in their tendency to root from the pear,—some few, like the *Duchesse*, refusing almost entirely to do so; consequently, not a tree out of a dozen of this variety has been successful,—all failing to make a healthy growth and to bear fruit to any extent.

The true method, as I conceive, of drafting any tree, and that will ultimately do away, no doubt, with the questionable practice of using the quince, thorn, mountain ash, or any foreign root for the pear, is that of *root-pruning*; and a brief statement of the way in which I have induced fruitfulness in apple trees that were tardy in coming into bearing, will give my idea of the proper manner of performing the operation.

The first dozen Northern Spy apple trees that I planted did not bear a bushel to the tree until they stood thirteen years, when they gave a crop of ten bushels each.

Later I planted twenty-five or more of this variety. After they had stood six years, I root-pruned them thoroughly, by digging a trench three feet from the tree, and two feet deep, cutting off all the roots. The trench was refilled, the ground cultivated, and the following year those trees bore a full crop, and have borne as well, at least, as the older trees since,—some ten years or more.

As casting some light upon this question, and affording a possible clue to the cause of the greater measure of success that seems to attend the cultivation of the pear on the quince at the East than at the West, I will say that here, as a rule, the quince does not fully endure our climate, being killed back, more or less, almost every winter. And what facts or analogies have we, to lead us to believe that the root of a tree will be hardy in a climate where the top is not? I have had the quince on my place twenty years, but it has never borne. There is here and there a locality where quinces are grown to some extent, but it is a fruit not generally successful in our soil and climate.

I find that across the lake, in the still more trying region of Wisconsin, some fruit-growers are becoming enthusiastic over the promise of the mountain ash as a stock for the pear. This has the advantage of hardiness, in any situation where any fruit will grow; but still I have grave doubts of its being equal to the roots native to the pear.

I find the experience of the leading growers of the West mainly conformed to my own. Some grow dwarfs, because they are called for, but plant standards for themselves.

This subject is by no means exhausted, but enough has been said, perhaps, to direct the attention of planters, and to call out the views of others that have had experience with the pear, here at the West.

The fallacy of the value of dwarf pears, like every other fallacy, is very difficult to eradicate from the popular mind. The more intelligent planters, however, are recognizing the great superiority of standards. And the fact that pear trees, on the quince root, may be bought to-day, in any of the large Eastern nurseries, for one-half the price of those on pear roots, is significant of the growing intelligence of fruit-growers, and is our best augury for the future of this interest.

TEST GARDENS.

[The following letter, received from Mr. Parmelee in reply to an inquiry regarding his view of a test garden, was overlooked in my former report.—SECRETARY.]

OLD MISSION, MICH., Oct. 17, 1870.

DEAR SIR:—Your letter of 10th inst. arrived when I was absent. I take first opportunity to reply. Was interested in its contents, and feel that the end sought to be gained is very desirable,—to protect people from wasting time and money on kinds of no value. It should help to exalt our State into the position which she can and should hold,—that of the first in the production of the most important fruits.

If all our efforts can be put forth to raise only the best, it will be a great point gained ; and success in an enterprise, such as you speak of, would have a great influence in that direction ; but people must be convinced it is not in the interest of any speculation.

A fruit-grower is not of necessity a nurseryman, and should not be. The tendency of that interest is to the cultivation of sorts that have habits suited to the easy production of handsome nursery stock. And a nurseryman's interests tend to make his recommendations of varieties to differ, sometimes, from the real interest of fruit-growers. It need not be so, for when people understand that it costs more to grow a tree of slow, crooked, or otherwise faulty habits, they will be willing to pay for it, if the value of the fruit makes it desirable. The influence of the State Society should be to harmonize those interests.

When a nurseryman has a new variety, which he thinks of value, he wishes to make something out of it, and will not like

to wait for a recommendation from the Society. Some one else might stock up with it, and he not derive any benefit from priority, which would be wrong, and against progress, as it would remove one of the inducements to improvement.

Just how far a person, introducing a new sort, should be protected, may not be an easy point to settle.

It is probable, the time that will be required to enable the Society to give a valuable decision will be the greatest obstacle in the way of rendering a valuable service to the people generally, as it will in the way of the hearty co-operation of nurserymen.

The occasional misleading of single tests will also be another difficulty. These considerations, doubtless, suggest themselves to the members of the Society, and ways may be devised by which the difficulties will be, to a great extent, provided for.

These are matters for careful consideration, and I sincerely hope that whatever the Society may do, they may profit by the partial failure of some other similar bodies, and be what is needed,—an aggregation of practical knowledge that shall be made attainable to the “universal million.”

There is a noble field of usefulness for the Society, if men who can assist will drop all feelings of local or sectional jealousy and make it really a State institution, that shall be comprehensive in its scope,—that shall know no particular section, except to study its peculiarities and promote its interests. If I can do anything in the interest of such a society, I shall do it with great satisfaction, and would rejoice to see men in all parts of the State who have valuable experience, take hold of this matter to make it a success. The State, in its municipal capacity, ought to do more than it is doing, and I hope the Society, as it becomes larger and better known, will exert an influence in that direction. Evening sessions of the Society at time of the Fair, would have been desirable, for an interchange of views. I regretted that I could not stay to hear Mr. Littlejohn's address.

Shall be in south part of State in two weeks, and might possibly attend the November meeting, if I knew the day.

Will send you with this mail, a "Grand Traverse Herald," on first page of which you will see some ideas on the subject of fertilization.

It is not pleasant to differ with the host of men who try to doctor agriculture. I felt compelled to do it, we get such a sea of bosh from men who get all their knowledge in the office.

Whatever truth there may be, theoretically, in the hobby of restoring mineral elements to the soil, any man who lives in the sun-light and uses his eyes, may know that it has not the value that is claimed for it.

Yours truly,

GEORGE PARMELEE.

THE POINT DE PEAU VINEYARD AND ITS WINES.

From the Michigan Farmer.

On the shores of Lake Erie, a few miles below the mouth of the Detroit river, there are several points jut out into the Lake, just North and East of the mouth of Monroe harbor. One of these is Point de Peau, its name being French, and derived from the usage of the Indians, who used it as a high dry place on which they could cure skins of the animals which they caught in hunting or trapping. It is situated nine miles northeast of the city of Monroe, between Stony Point and Swan creek, and we drove there partly over the old road that leads to the northward along the lake and the Detroit river. The country, all through this section, is quite level and flat, with a strong clay loam that is rich in calcareous matter. The soil rests on the rock known to American geologists as the Trenton limestone, which crops out in many places. The timber is mostly oak, ash, black walnut, hickory, elm, cotton wood, and there is a good business done getting out staves in some sections. It is a magnificent land for grass, and wheat is generally heavy, but the land, which is mostly cultivated on the old French system by the inhabitants, does not have much chance to show what it can do under any system that would develop its strength and ability to grow either meat or bread-stuffs. All along the road from Monroe to the Point are scattered the log houses of the holders of small tracts of lands, mostly French, who raise their little patches of corn, and keep a cow, and possibly a hog or two, and are occupied mostly in the fisheries or in hunting in the marshes, when they are not busy watching their crops grow. There is no knowing what

this strong soil would produce if fairly treated. We notice that there are several drain-tile factories near Monroe, and that is evidence that the work of improvement is going on in some portions of the county.

At Point de Peau, the company who have undertaken to establish a vineyard originally purchased the location as a place for private residence for themselves during the summer season, but were incited to the attempts to make a vineyard by the success which had attended grape-growing on the islands. Here was a location almost insular, with the soil equally as good, if not superior, and with all the influence of climate in its favor. When we visited this place on the 21st of this month, the frosts that had ripened the grapes about Monroe, and had stripped the vines of their leaves, had not been felt; we found tomatoes green and growing, the vines still covered with leaves that had as much green as brown in their color. Even beans that had been late planted were in flower, and had not been touched. At Monroe and inland the grape crop had all been gathered, and the vintage was over; and at some of the wine-making establishments, the whole work of the season was completed. Mr. J. M. Sterling has a small vineyard at Monroe, and there the grapes were all gathered, and the last of the gathering was just put in the press.

THE SOIL.

The soil here is a mellow clay loam, containing much lime. It is from twenty to thirty inches in depth, and rests on the limestone rock, which is much broken up and forms a natural drainage, that renders the surface soil dry and warm. Professor E. A. Foote, of Ann Arbor, found quantities of celestine, strontianite, white calcite, and carbonate of lime in the specimens he examined during a visit he made here last year.

THE PLANTATION

at present includes about twenty-five acres, but the whole is not planted with grapes. The grapes have been set out from five to six years, and are well established. The vines are set in

rows that are eight feet apart, and the vines are six feet apart in the row. The varieties grown here are the Delaware, Concord, Catawba, Ives Seedling, Norton's Virginia, and Hartford Prolific. The system of cultivation followed is the renewal. That is, every year at any time when the weather will permit after frost has set in, the old wood is completely cut off, and there are left only from two to three canes of last year's wood for bearing. This work includes a vast amount of labor, in the clearing off the old wood, and the selection and tying up of the vines that are to be depended upon for next year's crop. This trimming and preparation of the vines, which may be done in the winter season at any time between December and March, is all the trimming or pruning which the grapes receive. There is no summer pruning; all the foliage developed by the shoots is left as needed to ripen the grapes. No leaves, no ripe grapes. In tying up the canes, care is taken to bend them at sharp angles, as low down as possible, as this check to the flow of sap tends to promote the formation of fruit buds. After the grapes are gathered in the fall, the plow is run between the rows to throw up the soil against the vines, and leave a dead furrow in the center, between each two rows of vines. This stirs the soil, exposes it to the frosts of winter, protects the roots, and at the same time drains the surface water from around the vines. In the Spring the plow is used to throw these furrows back again, and the cultivator is used to do the weeding, and keep the soil clean in the rows; of course only hand-hoeing can be used to keep the ground clean around and between the vines and the rows. The vines are supported by trellis of wire. For the first two years a stake will serve for the support of the vine, but after that the trellis is found necessary. The trellis is made of posts which support three rows of No. 9 annealed wire. The first wire next the ground is set about twenty-two inches up in the post, and the other wires are sixteen inches apart, which makes the trellis just four and a half feet in height. The cost of trellises for an acre will range from \$75 to \$90.

THE APPEARANCE OF THE VINES

was remarkably healthy. The leaves were turning in color, but the foliage had not begun to drop; there was no sign of being affected by any frosts. The bunches of grapes were well shaped, full, and the berries sound. There were no signs of weakness; no dead grapes had dropped off or were lying on the ground, and only some of the bunches were considered mature enough to gather.

The growing of the grape for wine is a very different business from growing the grape as a fruit to eat, and the trouble is that a great many people think that because they have grapes they can make wine. This is a mistake. They make a beverage, or a pleasant drink that may be called a cordial, or may be called fermented juice of the grape, or anything else, but it is not a wine in the true meaning of the word. One of the great mysteries in wine-making is in the growing of the grape so that its juice will make wine. Some seasons are very favorable in this respect, and will ripen up the grape to the very pitch of perfection. In other seasons the grape is never thoroughly seasoned, and the result is that the wines of that year are inferior. Then again it is important, in a good season such as the present, to know when the grapes are in their greatest perfection. If they are picked too soon they are apt to contain too much acid, and if they are picked too late the quantity is reduced, while the saccharine matter is increased at its expense. The great point is to make a wine from the juice of the grape alone, that will need no addition of any kind to reduce it to a state fit for manufacture. It is well known that the juice of the grape must contain not less than 76° in 1,000 of saccharine substance, and must range between 42° to 8° of acid. But the higher the grape juice goes in the saccharometer above 76° without getting outside of 7 or 8° of acid, the better is the wine. When the acid is in excess of 8° the grape juice or must has to be reduced by the addition of water till the acid is only 8° or less, but this addition of water

reduces the proportion of sugar at the same time, and this substance has to be added till the scale shows 76° or over. And this addition of sugar and water does not diminish in any degree the strength of the wine, but it lessens the aroma or flavor, or bouquet, as it is called, and hence the wine is deemed inferior.

There are instruments for testing the condition of the juice, and by which the state of the grapes for wine-making may be found at any time by those who know how to manipulate them. The first is the must scale, which measures the proportion of sugar there is in the grape juice. Another is the acidometer, which, by a peculiar, simple test, ingeniously contrived, with certain proportions of bicarbonate of soda, gives the proportion of acid. When the proportion of these two elements are known, then the condition of the grape juice is understood exactly. The other elements of the wine—its aroma, flavor, and delicacy—depend on the flavor and quality of the fruit, and in the care, cleanliness, and skill of the wine-maker in the handling during the process of fermentation and curing. When we got down to Point de Pean, Mr. Sterling explained to us that the season had so far advanced that he feared his grapes were getting too ripe. This would secure a strong wine, but less in quantity. The aim of this wine-making establishment is to make a pure wine, that shall contain nothing but what the juice of the grape furnishes. The soil is here; the climatic conditions are of the most favorable kind, and all that is needed is the application of skill, experience, time, and the use of capital. There has not yet been erected all the necessary fixtures, but they are getting ready for them as soon as they are likely to be required.

TEST OF THE GRAPES.

When we got down there, we were first shown the vineyard which we have described above, and were then taken through the building used for making the wine, and for storing the vintage. There we had an opportunity of tasting and com-

paring the products of the several kinds of wine, in all the various stages of preparation. Afterwards we went to work to test the condition of the grapes that were then on the vines, and which were about to be gathered.

The first tried was the Catawba. As fruit, we have never tasted the Catawba in finer perfection than we found them here. Berries large, bunches heavy, pulp melting, aroma very fine and delicious. The juice was expressed through a flannel bag, and, under the test, it was found that it yielded 83° of sugar and $9\frac{3}{4}$ of acid, with the thermometer standing at 66° . It was concluded that these grapes, which any ordinary grape-grower would have pronounced perfect, would stand with advantage a week or two longer, as the acid was yet too heavy by fully two degrees.

The next tried was the Delaware, which exhibited 91° of sugar and $8\frac{3}{4}$ of acid. The Delaware grapes were remarkably luscious to the taste, but they were rather high of acid, though nearly perfect as regards sugar. At the Pleasant Valley vineyards of New York, the Catawba is accounted perfection when it yields 84° of sugar, the Delaware 92° , and the Isabellas 75° . We tested, at the same time, the Delaware must, that had been expressed the day before, and found it yielded 92° of saccharine matter and $7\frac{1}{2}^{\circ}$ of acid, so that it was in the very best stage for making wine of the highest quality.

The Ives' Seedling was the next tried. This grape, to us, when picked off the vines, had a very pleasant, mild, rather sweet taste, and a thin skin. It seemed to us in its most perfect stage of ripeness. It exhibited 78° of saccharine and $6\frac{1}{2}^{\circ}$ of acid, showing that it was in the true stage for wine-making. But, of course, with this percentage of sugar, would only make a light wine, like the Sauternes of France.

We next came to the Norton's Virginia. This grape is high colored, being almost a shiny black, a small berry, a compact bunch, and is not an agreeable table variety. It exhibited 97° of sugar, and 13° of acid. There, it will be seen, was a must

that would stand a great reduction by water, and as long as the proportion of sugar was kept above 76° there would be no extra sugar required. It is, therefore, a grape that many wine-makers would prefer, especially where quantity rather than quality was desired. However, we do not know what a longer exposure on the vines would do to it. A mixed must, composed of one-half Concord, one-quarter Norton's Virginia, and one-quarter Ives' Seedling, gave the elements of a first-class wine of about the strength of ordinary Burgundy, viz: $84\frac{3}{4}^{\circ}$ sugar and $6\frac{3}{4}$ acid.

The Delaware wine of 1870 was placed under the acidometer, and yielded $5\frac{3}{4}^{\circ}$ of acid. The Red Concord of 1870 was also tested, and exhibited $6\frac{1}{2}$ of acid. The White Concord of the same year was also tested, and found to contain $5\frac{1}{2}$ of acid.

With these exact tests, it will readily be seen that the wine-makers who understand their business can readily get a fair knowledge of the condition of their vintage, and that without that kind of knowledge their work must be all guesswork.

WINE-MAKING.

The grapes, when it is decided to gather them, are clipped off with shears and placed in baskets, and these baskets are gathered and carried in hand-carts to the press-room. This room is in the upper story of a building that is constructed to serve as a wine-cellar and store-house. It is built in the most substantial manner, with the foundation on the limestone rock, which serves as a floor to the cellar. The walls are built of stone on the outside, and are lined with brick inside, with an air-chamber between the brick and the stone, to serve as a non-conductor. The temperature in this building is kept between 60 and 65 degrees all the year round. The upper story to which the grapes are carried, is furnished with a press, and with vats into which the grapes are first thrown. They are afterwards pressed, and the must is placed in the fermenting vats, till it goes through the first fermentation. It is then drawn off into casks, where it goes through the second fer-

mentation, the casks being kept filled, and the air kept out by tin syphons, which discharge the gases through liquid, and prevent the wine in the cask from coming in contact with the air. When the fermentation has subsided, then the wine is racked off into large hogsheads, which hold 500 gallons each, and there it is allowed to remain. It is calculated that it should remain in the wood to cure for at least three years. The wine being made in the upper story, it is drawn off by syphons and flexible tubes, and is thus handled in the neatest and most economical manner.

In the lower cellar there were eight hogsheads that would contain, each, 500 gallons. These are kept full, and are examined from time to time as to the condition of their contents, and contain several kinds of wine, each of which has its character. The White Concord, Red Concord, Golden Catawba, and Delaware, are the principal kinds. All are made now from the juice of the grape alone.

The company are getting ready to erect a store-house or cellar, where the vintages of the several years which it may be desirable to retain, can be stored. To make still wines of the high quality that is aimed at here, time is one of the elements necessary; and there is hardly any of these wines that can be sold, with justice to the maker, before it has stood at least two years in wood. Three years would be preferable. It will be seen, therefore, that room for storage, where it can be kept at the proper temperature, is indispensable.

The crop of 1870 was found to yield wine at the rate of a gallon to every $17\frac{1}{2}$ pounds of grapes, and an acre averaged about 6,000 pounds, or three hundred and fifty gallons of wine. Ten acres, therefore, would require, for storage, seven of the large 500-gallon casks for the keeping of a single year's crop; room for storage that would secure a temperature of not less than 60°.

There are many other considerations that enter into this business of wine-making, that deserve attention by those who

desire to make themselves masters of the whole art, and without which they cannot make the higher kinds of wine required by commerce. We have endeavored to show that growing grapes for wine-making is different from growing for fruit, and requires an attention that all are not prepared to give it. And then, when the grapes are grown, where is the storage and room to keep the wine till it is ripe, and the capital to supply all its necessities? Grape-growers may squeeze out the juice of the the grape and ferment it, and call the stuff wine; but it is not the wine of commerce, nor the article that people esteem as wine.

WINE-MAKING AT POINT DE PEAU.

In a letter recently received from Mr. J. M. Sterling of Monroe, he says: "We are almost through with our wine-making for this season. When you were here on the 23d of October, we were then picking the Delawares. On the 8th of November we finished picking the Catawbases. We had a slight frost at the 'Point' on the first of November, but it did not affect the grapes in any perceptible degree, or in any way that we could appreciate it by our instruments.

"The must of the several varieties of grapes named, was tested, and we remarked that the sugar increased, and the acid diminished in proportion as the season advanced, and the following table will exhibit the difference between the first pressing and the last.

"The sugar increased as follows :

Delaware must, from.....	85 to 91
Ives' Seedling, from	79 to 82
Norton's Virginia, from.....	103 --
Concord, from.....	82 to 85
Catawbases.....	82 to 86

The acidometer marked the percentage of acid in the must as follows :

Delaware, from	6½ to 8
Ives' Seedling, from.....	4½ to 4½

Norton's Virginia	12 $\frac{1}{4}$..
Concord.....	5 $\frac{1}{2}$ to 6 $\frac{1}{4}$
Catawbas	6 $\frac{1}{2}$ to 8

“These tables show that the last pressing, or the must made from the grapes that remained longest on the vines, was in the most perfect condition to make strong wines, of a high quality, and which would bear much reduction to make the thin wines equivalent to the light Rhenish wines of Germany and France.

“The must was made from grapes at the rate of a little over thirteen pounds to the gallon.

“The whole vintage reached 67,000 pounds of grapes, and from this we made about 5,000 gallons of wine.”

CLEARING STUMP LANDS FOR THE PEACH.

[The following letter, received from Mr. Peck, with his paper on "Clearing Stump Land for the Peach," although of a private character, I take the liberty to publish, with the hope that some of our St. Joseph brothers will accept the situation, write us the book we need, which, with Mr. Peck's assistance, should make a Michigan work for Michigan men.]

MUSKEGON, Nov. 20, 1871.

A. T. Linderman, Esq.:

DEAR SIR—Yours of 16th inst., is before me. Enclosed, please find the promised essay on the Peach. Many of the directions and opinions may seem arbitrary without the reasons being given for them, but to do full justice to the subject would require a volume instead of an essay. There is a great need of a work on the Peach, adapted to this lake shore. All lists of varieties that I have seen, while they are full of names of varieties that nobody knows or cares anything about, some choice and popular varieties are left out or imperfectly described. A work, I think, has been published in Delaware, but I have not seen it, and have little hopes of its fitting our case. We want a list of the varieties that have been fully tested here, their hardiness and bearing qualities, as well as all their peculiarities, fully described, and their nomenclatures revised and established. Such a work should come from St. Joseph, where they have had a longer experience and tested more varieties than anywhere else here.

I would gladly make a preface to such a work, but I lack the experience, observation, and knowledge sufficient to fill up the work. * * * Yours truly,

S. B. PECK.

MUSKEGON, Mich., November, 1871.

To A. T. Linderman, Esq., Secretary of the State Pomological Society :

In accordance with my promise to you, I now devote a leisure hour in describing my methods of clearing up the sandy pine stump lands of this lake shore, of planting, pruning, and cultivating the peach, and my successes and failures with the varieties I have tested, adding thereto a little from my observations of the successes and failures of others in this vicinity.

In clearing these stump lands, I have found it the most economical way to cut off the tops of the grubs, and after clearing the ground of logs and brush, to pull out the roots of large size with a stout pair of oxen, hitched to a forked hook with a wooden handle, which works very much like the claws of a hammer, except that it is pulled forward, instead of being turned back. The same oxen, with a narrow plow that will cut deep, say ten to twelve inches, will then break it up. Of course this furrow will stand nearly on its edge; a fine-toothed harrow then mixes the surface and subsoil, and takes out many of the pine roots. As to the stumps, it is certainly very desirable to have them removed, but it is not necessary to success with the fruit. I prefer to raise a crop of potatoes the first season, and work them thoroughly with a one-horse cultivator, and plant my trees the following spring. Still, if the ground is broken and harrowed in the fall and re-harrowed in the spring, it will do very well. The time of taking up and replanting the peach or any other tree, shrub, or vine, is decidedly the spring, in my estimation. As to future cropping of the grounds there may be a question; there can be no question of the propriety or even necessity of continuing the summer culture as long as you tax the soil for the growth of the trees, or the production of fruit.

As to manuring, it may be essential to future cropping, but I prefer that peach trees should not be stimulated other than by frequent cultivation, till about the middle of August—till they commence bearing—as a very rapid growth seems nearly fatal to a sound, healthy, long-lived tree.

The age of trees for planting—whether they be two, three, or four years from the pit, they should be only one year from the bud; the roots may be cut off pretty close, say six to eight inches, depending somewhat on their age and size. There is little danger of losing the tree from pruning, if taken up in the spring and not injured by frost, and the roots not exposed to drying winds. I am not an advocate of the slow process of planting so often recommended. The holes, where the ground is properly prepared, may be dug quite rapidly, and not larger than the roots require, the earth loosened in the bottom, and left in the shape of an inverted bowl; the trees should be set a little deeper in this sandy soil than they grew in the nursery, and after seeing that the roots are in place, fill up as fast as you please, packing slightly with the foot when full, and throwing a little loose earth on the top; and, when done, cut off all the branches.

I think it best to “shorten in,” in the latter part of summer, the first two or three years growth, the amount of which depends much on the natural habits of the variety, the amount of growth it has made, and the shape you wish it to assume; but I have no doubt that this process, especially if done in the spring, hinders early bearing,—a thing very desirable in any fruit tree, if not allowed to be excessive, as the tree, as well as the animal, is affected through life by habits formed in youth.

The Barnard and the Orange Rareripec, (two varieties of which I shall hereafter speak,) require much more watchful shortening than the Serrate Early York, or the Crawford's. Heading low is best for the vigor and health of the tree, especially in windy situations, but it requires much more hard labor in the cultivation, and it is objectionable, if you are to fight the curculio on Dr. Hull's plan. A close observer will readily see that, in all pruning, he must remove about twice as much from the east side as the west, and cut to an upper bud on the east side, and to an under one on the west. In no other way, in our soil and climate, can he obtain a proper symmetry of the tree.

I may as well close this subject of pruning by saying, that when you cut a tree you should be able to give a reason for cutting at all, and also for cutting at that particular point.

OF VARIETIES.

My experience is not very extensive, especially with the newer ones. Of the Hall's Early, my observation leads me to conclude that the tree is hardy and productive, and the fruit of good flavor, when ripe; but that it is only fit for home use, as to bear any carriage it must be picked before ripe, which renders it nearly worthless to a connoisseur.

The Yellow Rareripec is the next in ripening; with me is very sure in bearing. Trees healthy, but rather dwarfish, flavor fair, size medium, bears carriage, and I know of no peach, ripening at the time, that I prefer.

I allude to the peach of this name as described by Downing.

The Serrate Early York is a beautiful fruit, of fine flavor, but the tree, with me, liable to mildew, and consequent barrenness; for this reason I discard it.

I would say of George Fourth, that there is no peach of finer flavor, but it makes a gigantic tree of great pretensions, but little fruit. I had concluded to discard it, but it has partially won my favor the past season, when some varieties have so overborne, (the Crawford's Early in particular,) as to render the fruit nearly worthless. My home customers have preferred this to all others of its season, this year.

The Honest John.—By this I mean the peach known by that name at St. Joseph, and not the one mentioned by Downing,—a yellow-fleshed, medium-sized fruit, with a very small pit, and ripening just before Crawford's Early. It has a good bearing reputation at St. Joseph; but my seven trees, planted in 1862, have borne only in 1868 and 1871; but when they do bear, "they bear to kill;" that is to say, no amount of propping the trees will prevent their breaking, and they come out the following spring like a waning consumptive. Thinning the fruit (which I have never yet done) may remedy the partial

barrenness, and keep up its vigor. It is a desirable peach, and worth the trial.

Crawford's Early ! What shall I say of this superb and most popular peach ? Free, vigorous, hardy, symmetrical,—its large golden fruit nestling among its large, thick, wavy foliage,—proclaim it, unmistakably, the peach king ; bears carriage well, and during the ten or fifteen days of its reign, it rules the market. The worst that can be said against it is, what the negro said of the moon : “ He neber shine in a dark night ; ” it never bears when peaches are scarce, and when it bears it gluts the market ; but it cannot be dispensed with.

The Barnard. The reader will please make due allowance for any excess of praise I may bestow upon this tree and fruit, for it is my pet. Its long, sharp-pointed, deep green foliage, in contrast with its dark deep-colored fruit, fills my eye, and I can never pass it, while in fruit, without stopping to pay obeisance to it ; but good as it is, in looks, size, and flavor, its chief beauty lies in the fact that it bears always.

Crawford's Late is a first-rate peach in size, looks, and flavor ; bears a big price because of its lateness ; is sometimes injured by frost, but worse than all it don't bear.

Cable's Late is yellow fleshed, of good size and flavor, nearly equal to the Crawfords—for which the trees have been sold by nurserymen,—ripening between the Crawfords ; but my trees have borne only two crops, while they should have borne six.

Newcomb's Seedling, Yellow Rareripe, Orange Rareripe.—I see that the State Pomological Society give this peach the first above name, while somewhere on exhibition at its late fair, under the second, but we know it by the last. It is a late, lightish yellow fruit, without shade in its color, of fair flavor and medium sized ; tree, very hardy, in habit much like the Barnard, and needs, like it, shortening in to keep the branches off the ground. Remarkable for producing its kind from the pit. The fruit is always wanted and never fails. I esteem it the most desirable within my knowledge, to close up the peach season with.

There are other varieties that bear a good name, but with which I am not acquainted, among which are Cooledge's Favorite and Hill's Chili, of which I have a good opinion.

THINNING THE FRUIT,

I was always well aware, was good policy when a tree overbears; but till the past season I was never aware of the ruinous consequences of neglecting it, several of my Crawford's Early being utterly worthless from excess of fruit. By doubling the size, you nearly triple the price, without diminishing the quantity in measure.

Respectfully,

S. B. PECK.

STATEMENT OF THE SPRING LAKE VINEYARDS AND ORCHARDS.

The enterprising people of Spring Lake have appointed a committee to prepare a concise and correct statement for the State Pomological Society, of the yield of fruit in and about Spring Lake this year. The largest vineyard is that of Hunter Savidge, Esq., which contains 2,000 vines. Three vineyards have each produced fifteen tons of grapes, mostly Concord. The aggregate amount of grapes raised in the vicinity of Spring Lake this year, will reach 140 tons. There were 18,000 baskets of peaches shipped this fall. The Horticultural Society of Spring Lake has received a beautiful silver medal and a diploma from the State Agricultural Society of Wisconsin, for "the very fine exhibition of peaches" exhibited at the State Fair, at Milwaukee, in September. From the local paper of that beautiful fruit section of the State, the Spring Lake *Independent*, we gather the following statements of the yield of fruits for 1871:

Geo. H. Lovell—4,500 peach trees on 25 acres. Shipments, 7,000 baskets; received for same \$3,500; grapes, one-half acre, 7,000 lbs., or 3½ tons; netted 3c per lb., \$200; apples 20 bushels; net proceeds, \$3,710.

Charles E. Soule, proprietor of Vineyard Point Orchards, reports 299 bearing peach trees, mostly Early Crawford, which produced 2,241 baskets; gross sales \$1,416.93; cost of baskets, freight, etc., \$434.93; net proceeds \$982. Of grapes, Mr. Soule has a large number of vines, all young. From his vineyards he realized \$251.95; proceeds of farm \$1,223.65.

J. B. Soule reports 2,000 peach trees three years old, mostly Early Crawford, from which he shipped 1,000 baskets. His

vineyard consists of 360 vines of the Concord and Delaware, from which he shipped 4,500 lbs. Raspberries of the Doolittle variety, raised 40 bushels. Net proceeds: Peaches, \$650; grapes, \$100; raspberries, \$70; total, \$820.

E. A. Treadway has 15 acres under cultivation, which three years ago were covered with forest trees and underbrush. He has 100 bearing peach trees, which produced 60 baskets. His vineyard consists of 500 young vines, from which he gathered 3,000 lbs., or one and a half tons of grapes; also, 10 bushels of Black-cap raspberries, and 10 bushels of Red-cap raspberries. Net proceeds: Peaches, \$15; grapes, \$75; black raspberries, \$50; red raspberries, \$30; total, \$170.

Martin Walsh, 111 peach trees, from which he shipped 1,000 baskets of peaches, and from his little vineyard he had the most remarkable yield on record. He has 62 rows of the Concord, 23 vines in a row, in all 1,426 vines, from which he shipped 280,550 lbs. of grapes, or *fourteen tons five hundred and fifty pounds*, for which he realized three cents per lb., net, or \$841 65 off two acres and 36 rods. Mr. Walsh also reports 10 bushels Siberian crab apples, 10 bushels raspberries, 20 bushels blackberries. The net proceeds of a crop grown on a little over two acres of ground, as follows: Peaches, \$500; grapes, \$856 50; Siberian apples, \$20; raspberries, \$30; blackberries, \$150; total, \$1,550 50.

Chas. Allen's young vineyard and orchard of five acres produced as follows: Of grapes, 7,900 lbs., or near four tons, from 700 Concord vines; one acre of strawberries, half of which produced 25 bushels; and 28 bushels raspberries. Mr. Allen has 100 young peach trees, and two hundred apple trees beginning to bear, and 100 pears. Net proceeds: Grapes, \$632; strawberries, \$180; raspberries, \$84; total, \$896.

H. G. Smith reports having shipped 789 baskets of peaches, 200 grape boxes, 110 bushels of apples. Net proceeds, \$497 67.

T. D. Denison reports having raised from 100 young peach trees 600 baskets. In his vineyard he has 200 vines, from which he gathered 2,000 lbs. Net proceeds: Peaches, \$360; grapes, \$80; total, \$440.

From the Spring Lake Nursery, John K. Kneeland & Co., proprietors, we have received the following statement: The firm owns 161 acres of land, one-half of which is in orchard, nursery, and vineyard. This firm has 1,200 peach trees beginning to bear, from which 1,000 baskets were shipped this year; 250 apple trees now bearing; 4,000 now being added to the orchard. Their vineyard contains at present $4\frac{1}{2}$ acres of young vines, from which 2,500 lbs. of grapes were shipped. Two acres were planted in small fruits.

L. D. Bartholomew reports seven acres in peaches—orchard. He shipped 125 baskets from one acre. He has 500 bearing vines in his grapery, from which he had 2,000 lbs., or one ton of grapes; of raspberries he had 200 quarts.

Hiram Beckwith has 40 acres; his apple orchard contains 150 young trees which bore 60 bushels this year; 10 bushels of pears from 2 trees. Mr. Beckwith has 600 peach trees, and 200 beautiful quince, three years old; also one acre in vineyard, one-half acre in strawberries, and one-fourth of an acre of raspberries.

W. G. Sinclair reports having sold 200 baskets of peaches, 40 bushels of apples, 20 bushels of raspberries, and 2,000 lbs. of grapes.

This, with most of the above orchards and vineyards, is within the corporate limits of Spring Lake.

Of the remarkably fertile portion of our State, known as the "Fruit Belt," we need hardly speak, for it is familiar to all who know of "My Michigan." What natural causes have combined to make this portion of the lake shore the best fruit-producing district in the United States, we will not stop to argue. Yet there are well-known natural and physical causes, as well as Utopian theories, regarding this subject. But the fact that "Michigan Fruit" is recognized as the very best, and sought after in the principal markets of the United States, retained on the streets of New York City, and placarded on busy corners at Denver; and our apples have even been shipped to Liverpool this season,—this means something.

Can we show the facts and figures to sustain our assertion

that this is the center of the "Fruit Belt?" We reply by pointing to the following tabular statement :

FRUIT GROWERS.	No. and kinds of Trees.**	No. Vines.	No. baskets Peaches.*	No. lbs. of Grapes.	No. bu. of Apples.	No. qts. of Berries.	Net Pro- ceeds.
Allen, Charles.....	100p. 100pr. 200p.	700	100	7,900	20	1696	\$896 00
Allen, M.....		200	-----	2,100	-----	-----	79 00
Alston, D. G.....	100p.	700	300	3,000	-----	-----	300 00
Bartholomew, L. D.....	1000p.	500	125	2,000	-----	200	155 00
Beckwith, H.....	150a. 25pr. 600p.	-----	-----	-----	60	1acr.	125 00
Benstead, J.....	25p.	200	24	1,000	-----	-----	40 00
Benstead, W.....	30p.	175	34	1,200	14	62	83 44
Bell, W. H.....	100p.	225	400	2,575	-----	-----	346 56
Brady, Thomas.....	75a. 45p.	-----	90	-----	60	-----	90 00
Brittian, Wm.....	50p. 25a.	100	80	900	10	-----	96 00
Brongersma, Cornelius.....	275p. 12a.	100	800	3,000	20	1,056	713 40
Clydesdell, R.....	25a. 40p.	25	40	200	10	-----	49 50
Cook, A.....	15p.	25	25	200	-----	30	23 00
Cross, J. A.....		200	25	1,500	-----	1,536	153 60
Dennison, T. B.....	100p. 30a.	300	600	2,000	-----	-----	325 00
Dewitt, O.....	20a.	100	-----	5,000	30	96	243 68
Deremo, J. L.....	75a. 112p.	-----	250	-----	125	-----	340 00
Eames, U. B.....	45p.	-----	160	-----	-----	-----	16 00
Eames, B. F.....	175p. 75a.	45	562	2,495	45	-----	481 85
Englemann, M.....	3000p. 45pr.	115	2,160	1,730	-----	-----	1,874 20
Fisher, Martin.....	200p.	300	280	6,000	-----	2,080	276 40
Fassett, Charles S.....	350p.	250	400	6,000	10	100	576 00
Fassett, T.....		-----	-----	-----	-----	508	60 96
Ferry, W. M.....	200p. 175a.	-----	1,000	-----	200	-----	700 00
Fox, Jonathan.....	25p.	-----	30	-----	-----	192	22 04
Frink, E. D.....	25p.	50	25	2	-----	288	39 80
Finch, Joseph.....	150p. 25a.	500	125	14	35	75	133 00
Gee, Warren.....	12p. 15a.	-----	20	-----	5	64	21 40
Gee, N.....	25p.	300	45	1,200	5	704	105 60
Hall, Lyman.....	600p.	500	800	2,000	-----	320	652 00
Hall, F.....		200	-----	6,000	-----	-----	270 00
Hamilton, D.....	25p.	75	20	500	-----	-----	43 60
Haire, R. A.....	25p.	18	100	100	-----	96	74 40

FRUIT GROWERS.	No. and kinds of Trees.**	No. Vines.	No. baskets Peaches.*	No. lbs. of Grapes.	No. bu. of Apples.	No. qts. of Berries.	Net. Pro- ceeds.
Hancock, G.....	16p.	50	32	600	----	-----	\$41 00
Hill, Charles.....	15p.	25	20	300	----	192	41 20
Hursenga, M.....	12p.	-----	10	-----	2	96	19 60
Hopkins, Mrs. H. A.....	50p.	-----	40	-----	-----	-----	70 00
Kay, C. H.....	600p. 60a.	-----	40	-----	-----	128	83 60
Kocher, A.....	25p. 12a.	75	40	500	3	512	94 20
Kneeland & Co.....	5200 trees.	900	1,000	25	100	2acr.	200 00
Kniffen, E. M.....	25p. 25a.	600	200	2,500	-----	-----	800 00
Lee, Mrs.....	45p. 25a.	25	172	100	5	90	61 60
Lee, R. H.....	25p. 15a.	-----	60	-----	5	14	49 40
Lovell, George G.....	1500p. 75a.	900	7,000	7,000	20	-----	8,710 00
Miller, Capt.....	700p.	900	2,000	2,000	-----	-----	1,080 00
McCarty, A.....	75p. 25a.	75	100	1,000	20	44	279 00
McLean, H.....	25p.	750	24	5tns	----	7	495 80
McMann, J.....	45p. 75a.	-----	100	-----	100	-----	150 00
Mason, W. B.....	3000p. 45a.	-----	300	-----	2	160	198 00
Newcomb, J. H.....	85p. 145a. 2q. 6p.	50	20	600	12	64	160 40
Orchardson, ———	-----	-----	-----	-----	-----	256	25 60
Painter, W. H.....	65p. 35a.	100	20	225	----	50	24 00
Petty, Thomas.....	8000p. 150a.	2,400	1,398	15tns	----	800	2,010 00
Penn, W.....	75p. 75a. 25pr. 4q.	-----	900	-----	80	96	547 67
Railroad Farm.....	275p.	250	475	2,000	----	256	436 20
Savidge & Cutler.....	500p. 175a.	1,400	2,000	10tns	200	-----	2,000 00
Seagrove, G.....	1200p. 75a.	1,200	4,000	7tns	75	-----	2 685 00
Soule, Charles E.....	297p.	250	2,241	2,500	-----	-----	982 65
Soule, J. B.....	2000p.	360	1,000	4,500	----	1,280	620 00
Soule, A. L.....	3000p. 1000a.	2,000	575	6,500	-----	-----	705 75
Sessions, J.....	-----	-----	-----	-----	-----	256	25 60
Sinclair, W. G.....	75p. 25a.	125	200	2,075	40	64	804 00
Sprague, Mrs. C. H.....	35p. 12a.	25	186	122	6½	-----	79 25
Smith, H. G.....	425 p. 175a.	125	789	2,150	110	-----	497 67
Smith, M. W.....	75p.	175	175	475	----	384	164 80
Taylor, Geo.....	-----	-----	-----	-----	-----	8	8 00

FRUIT GROWERS.	No. and kinds of Trees.**	No. Vines.	No. baskets Peaches.*	No. lbs. of Grapes.	No. bu. of Apples.	No. qts. of Berries.	Net Pro- ceeds.
Treadway, E. A.	100p.	500	65	3,150	----	630	\$172 50
Ward, A.		25	-----	150	----	3	9 25
Waters, D. R.		135	-----	2,175	-----		97 87
Walsh, Martin	400p. 25a.	1,426	1,000	14tns	10	1,920	1,550 75
Webster, J.	25p. 25a. 5pr.	28	40	700	12	96	69 60
Wilson, Mrs. J.	12a.	35	-----	200	10	288	51 80
Willard, W. F.	1450p.	1,200	1,400	6tns	-----		1,180 00
Wooley, S.	40p. 15a.	140	280	2,083	16½	3b pr	345 82

GRAND TOTALS.—27,859 peach trees; 7,187 apple trees; 600 pear trees. (H. Beckwith, Esq., has a quince orchard of 200 trees.) 24,232 grape vines; 33,592 baskets of peaches; 220,308 lbs. of grapes, or 110 tons; 1,536 bushels of apples; 19,201 quarts of berries. Net proceeds, including pears and quinces, \$31,789.83.

** "p" peaches; "a" apples; "pr" pears; "q" quinces.

* Railroad baskets.

Empty assertions can have but little influence upon the public mind, but "figures won't lie," and, when accompanied by the facts, the most skeptical or prejudiced mind must admit the justice of our claims to the honors of the "Fruit Belt." We would add, that our report includes only the orchards and vineyards within three miles from our postoffice. The orchards and vineyards, with a very few exceptions, are four years old, and many of them bore their first crop this year.

Within the territory canvassed there are several small vineyards not reported. It was impossible to get the correct estimates, and the estimates have invariably been put down at the lowest figures, where the details were not accessible. The Chairman of the Canvassing Committee, W. G. Sinclair, to whom we are greatly indebted for the facts in the accompanying report, states that the estimate of fruits is one-fifth lower than the real crop.

THINNING GRAPES—THE GRAPE CROP.

Mr. Alston of Spring Lake states that he thinned his grapes, and with the most satisfactory results. He removed half of the fruit on each vine. This was done when the new shoots were about a foot long. Branches were removed with the fruit on. Mr. A. trained his vines on the *arm* system. Every alternate shoot on the arm was taken off. Now for the result. Mr. Alstone says that his grapes ripened earlier than those of his neighbors, not so thinned. The juice of his Concord grapes held up an egg, without adding any sugar. We have heard of no other Concord grapes, raised in this vicinity, the juice of which would do this without the addition of half a pound of sugar to the gallon. The vines, Mr. Alston claims, grew very vigorously, and are capable of bearing heavier crops the coming season.

From five to seven tons of grapes per acre were raised in the Spring Lake vineyards this season. What grape section can beat this? At a low rate per pound, say four cents, the vineyards paid in the neighborhood of \$500 per acre. As high as ten cents per pound were realized in the beginning of the picking, and none were sold for less than three cents. Grapes pay in Michigan. It is the experience of the Spring Lake peach shippers, that peaches shipped in baskets sold for 25 cents more than in boxes, even when the baskets held more in bulk.

At the State Fair, held at Kalamazoo, were the largest Seckel pears we have ever seen. The pears were exhibited by Mr. Charles Davis, of Kalamazoo, who is the disseminator of the Kalamazoo Grape. They were almost as large as good-sized White Doyennes. Time will show that Michigan is not behind in growing pears.

Extensive preparations are being made, in the vicinity of Grand Haven and Spring Lake, for planting peach trees next spring. Large lots of trees are now received from various sources, and they are still coming by the car-load. Fruit-

growers, who have already large orchards in bearing, are still going to plant extensively. Some of them are receiving trees by the thousands.

THE CODLING MOTH.

From the Grand Haven Herald we learn that Mr. Brown delivered an address at Congregational Church, Benton, on this subject recently. A discussion followed. It was shown that no insect was doing as much damage in this country as the Codling Moth, and the amount of loss from its depredations, it was stated, amounted to millions of dollars annually. The method of destroying them by use of rags placed in the tree, and then run through a common wringing machine in the same manner as wet clothes are wrung out after washing, was explained fully. The larvæ of the moth find shelter in the rags—which it was stated could be of any material, though woolen rags are best and should be a little twisted to make hiding places for the larvæ—and of course are cheaply and instantly destroyed by passing the cloths through the wringer. The wringer can be securely attached to a small sized common saw-horse, used by carpenters. It should be used once every week. It was resolved that it is the duty of every grower of apples, to use Mr. Brown's method, which is free and not patented, for the destruction of the Codling Moth, and to urge every one who has an apple or pear orchard, to persistently use it and every other method that is likely to secure the destruction of the great pest. It was stated that fires burned near the apple tree in the evenings were not of much benefit in destroying this particular kind of miller, for the fire did not attract this class very much, though other insects were thus destroyed.

DOES FRUIT-GROWING PAY?

This question has been well answered in the Chicago Evening Journal, by its correspondent at St. Joseph, in this State:

That fruit-growing is largely remunerative is no longer a doubt, and in proof I will cite a few instances. What is known as "The Cincinnati Orchard," sixty acres of peaches, netted \$17,000. Z. D. Nickerson, in 1868, from 480 trees, took 3,100 baskets; in 1869, 3,500 baskets;—on five acres, and trees six and seven years old. Mrs. A. N. Kelly, in 1869, from 900 trees five years old, 5,000 baskets. A. R. Nowlen, in 1869, from 3,000 trees, 10,000 baskets. Dr. Collins, in 1869, from 3½ acres, took 3,327 baskets. J. Whittlesey, from 850 trees, 4,300 baskets. N. D. Brown, from 20 acres of fruit, all kinds, in three years, netted \$14,000. Strawberries, although cultivated extensively elsewhere, pay well here, if properly cultivated, netting from \$200 to \$400 per acre. This list might be extended indefinitely, but this will sufficiently indicate the profit of fruit farming. But then, of course, it requires labor and care, and a lazy and shiftless man had better not undertake it; and, in any case, twenty acres are enough, and many are content with ten, if well set out to choice and well-established varieties.

WILL APPLE CULTURE PAY?

From the Michigan Farmer.

For the benefit of those who think apple culture will not pay, we produce Mr. P. L. Austin's statement, published in the Detroit *Tribune*, respecting an eight-acre apple orchard owned by George Hall of Deerfield, Mich.: "I have helped to harvest apples this fall for George Hall, and the quantity of

apples packed for market is worthy of notice and publication. Mr. Hall sold from eight acres of bearing trees, eighty barrels of fall apples, worth ten shillings a barrel, five hundred and fifty-six barrels of winter fruit, for which he received twelve hundred and forty-five dollars. We think this ought to be enough to encourage every farmer to plant a few acres of land to fruit trees. Mr. Hall will realize a clear profit of eleven hundred and fifty dollars from these eight acres of land. His apples were mostly Baldwins and Bellflowers. This orchard is 14 years old, but it is not yet in its prime. A farmer can make no better investment than to set a few acres of his farm with fruit trees."

SELECTION OF APPLES FOR ORCHARDS.

We have received the following communication, from R. W. Coykendall, Secretary of Club, relative to the selection of apples adapted to the wants of Michigan, from the fruit-growers near Romeo. We hope that other localities will give us their views on the same subject, which is one of considerable importance to those setting out orchards:

To the Editor of the Michigan Farmer :

At one of the meetings of the Union Farmers' Club of Romeo, it was

Resolved, That a committee of three be appointed to make up a list of apples best adapted to our Western climate, and the same be reported to the Michigan Farmer.

The following varieties were reported by the committee chosen :

Summer.—Codling, Red Astrachan, and Sweet Bough.

Autumn.—Fameuse, Holland Pippin, and Porter.

Winter.—Rhode Island Greening, Canada Red, Baldwin, Northern Spy, Esopus Spitzenburg.

URIEL DAY,

JAMES STEPHENS,

J. E. DAY.

Committee.

RASPBERRIES—NEW AND OLD.*

BY BENJAMIN HATHAWAY, LITTLE PRAIRIE RONDE, MICHIGAN.

The season just closed has been one of abundance of this fruit at the West; and having grown quite a number of the leading sorts, with a view of testing their intrinsic and relative value, and having noted carefully their characteristics, the occasion is opportune for giving the results of my observations.

Doolittle's Improved.—This long-time standard sort continues to be grown, and where new plantations are being made, is more largely planted than any other of the blackcaps, except, perhaps, one or two of the new kinds. This fruit is of good size, and the plant hardy and productive. The canes do not have so good a habit as some others, their want of elasticity causing them to be broken down by the wind, or by cultivation. This, on strong soils at least, is quite a serious objection to this variety.

Seneca.—This sort is distinguished from the foregoing mainly by a different and a better habit of cane, and a few days later ripening of the fruit. I do not find that it possesses any advantage in size or flavor over the Doolittle, and the dull black of the berries rather detracts, I think, from their looks in comparison. Still I count it one of three or four of the best blackcaps, and it can hardly fail to give satisfaction.

Miami.—This is sometimes called the Old Miami, or Small Miami, to distinguish it from the Collinsville Miami, or Mammoth Cluster, and has some points of merit. It is several days earlier than the Doolittle, about with Davison's Thorn-

* By permission of the writer, the following valuable paper is taken from "Tilton's Journal of Horticulture."—SECRETARY.

less, not quite so large a berry as either, but a hardy and productive plant, with a habit of growth that commends it to favor.

Canada Blackcap.—This I find quite distinct and some days later than the Doolittle, but it possesses no advantage in size, flavor, or productiveness over the old sort. Had we not a more valuable kind in the Mammoth Cluster, its lateness would make it of some value.

Davison's Thornless.—It has been claimed for this variety that it is as productive as the Doolittle; but it must be conceded that, to get the same vigor of cane, it must have some advantage of cultivation over that variety; at least, that is my experience.

Still, its comparative freedom from thorns, its fine, large fruit, and early ripening,—before the Doolittle,—will well repay some extra labor, at least for the garden; and in field culture it has, I believe, in some sections, proved quite satisfactory.

Could we have a variety like this, free from thorns, with the vigor and habit of the Mammoth Cluster, it would, indeed, be an acquisition beyond price. Who will be the fortunate agent in its production?

Mammoth Cluster.—While the advocates of verbal accuracy will object to this name, and with some valid reason, it is too late, I fear, to displace it in the popular vocabulary with that of the Collinsville Miami, whatever may be said of the justice of such a procedure.

That it is the most valuable of our blackcaps, there can be but one opinion. Coming, as it does, a week or more after the Doolittle, with its fine large berries, vigorous canes, and most excellent habit of growth, it leaves but little to be desired in the way of a raspberry, except freedom from thorns.

That the great superiority of this variety was not generally recognized by horticulturists, so long as it had been in cultivation, before it was brought out as the Mammoth Cluster, is not a little remarkable.

Purple Cane.—This sort is, without doubt, a true hybrid between some variety of the blackcap family, *Rubus occidentalis*, and a variety of the red raspberry, *Rubus strigosus*. It propagates itself by suckers, as also by rooting the tips.

It has given me the most satisfaction, and the best returns of any red raspberry I have grown, except the Philadelphia, and is equally productive with that variety, and in season a week earlier.

It is too soft for transportation, but for family use it is exceedingly valuable. Its fine, elastic canes, that seldom get broken either by the wind or by cultivation, are not the least of its merits.

Ellisdale.—This has something of the character of the foregoing, and has been called an improved Purple Cane, though just where the improvement comes in is not so clear. It has a rather more vigorous growth and a similar cane, but the fruit with me has not been so large nor so abundant, and I fancied not so juicy and good, though possibly more firm than the old Purple Cane.

Naomi.—This new variety is thought to be, by some, I believe, identical with the Franconia. It is, however, different from that variety, if my Franconia is true. The Naomi is more productive, a larger berry, and the cane is more hardy, though I doubt if it will withstand our severe winters, without protection generally, at the West.

Kirtland.—This old sort has some points of value. It is the earliest raspberry I have,—a little earlier than Purple Cane and Davison. It is more hardy than any other sort of its family that I have tried, except Philadelphia and possibly Arnold's Hybrids. It is quite productive, though the canes are not so vigorous as is desirable, and it has the common fault of its family,—excessive suckering.

Clarke.—This sort has a much stronger cane, and larger fruit, of excellent flavor, and the plant is quite productive. It, however, is not quite hardy at the West without protection, and it also suckers badly. There are a few localities, like the peach

region on Lake Michigan, where it would probably succeed, and be safe to plant for market purposes, but generally it should only find a place in the garden of the amateur.

Philadelphia.—This is the only red raspberry we have yet that has proved hardy enough for extensive planting here, and its value is only beginning to be understood. Several reasons have conspired to prevent small-fruit growers from investing in this variety: A well-grounded distrust of the hardiness of all red raspberries, the dearness of plants, owing to their slow propagation,—as it makes comparatively few suckers,—and for the same reason, the longer time required to get a plantation into full bearing. This habit of making few suckers, is, however, one of the most valuable of its characteristics for the fruit-grower, when a plantation is once established.

The blackcap raspberry growing has been a little overdone, and the growers are considering the propriety of planting something else. And the Philadelphia is more promising of remuneration than any other red raspberry we have, and will continue to be until we have one of better fruit that is equally hardy.

Arnold's Hybrid (red).—This new raspberry, from Canada, I have planted a couple of years. In hardiness it is probably equal to the Philadelphia, while in vigor of cane and size of fruit, it is inferior to most, and it has the objectionable habit of innumerable suckers.

Arnold's Hybrid (white).—This has some characteristics that give it more value. It has larger fruit, of a delicate flavor, and is more really white than any other raspberry I have seen. It is more hardy than most of its class, though I doubt whether it will prove as safe as the Purple Cane for general planting.

These are claimed to be hybrids, but I fail to see any evidence of such a character. They have the excessive suckering habit of their class, and will not root from the tips. These facts alone are conclusive, to my mind, where they belong, in spite of their fall-bearing tendency, which manifests itself occasionally in varieties of the *R. Strigosus*, no less than in the *R. Occidentalis*.

MICHIGAN VINEYARDS.

GRAPE-GROWING IN THE VICINITY OF MONROE—EXTENSIVE GRAPE-
RIES—LARGELY INCREASED BUSINESS—HOW GRAPES ARE
GROWN AND WINE MADE.

MONROE, NOVEMBER 16, 1871.

The business of grape-growing is each year attaining greater importance in this country, and attracting general attention by the greatly improved quality of the grapes, and the superior wines that find a ready market all over the States and Territories. Until within a comparatively short time there were but one or two localities which were thought adapted in climate and soil for the cultivation of this sensitive and delicate fruit. It was not considered possible to bring it to maturity in a latitude so far north as Michigan, but the last four years has demonstrated, beyond a doubt, that in no other locality have grapes of all kinds been grown to greater perfection than upon the western shores of Lake Eric, and so successful has been the experiment that a large number of acres of land has been devoted to this business. As will be seen by comparing the following brief outline of the operations this year with that given in the *Free Press* in October of last year, the production has something more than doubled.

The Point au Peau Wine Company now have about fifteen acres of vines, most of them bearing, divided among the following five varieties: Concord, Delaware, Catawba, Ives' Seedling, Norton's Virginia; the Concord largely predominating, and the others about in proportion of the order given. The yield this year, in pounds, was 69,570, or about the same as last

year. A considerable quantity was shipped away, to Saginaw, Detroit, and other markets. In addition to this, 5,000 gallons of wine was made. Care was taken, while making the wine, to observe the saccharine and acidiferous properties of the different varieties of grapes, and to grape-growers and others this may be of interest:

	Degrees as tested by Oechsle's Must Scale.	Degrees of Acid by Twitch- ell's Acidometer.
Delaware	82 to 85	6 to 8
Concord	82 to 85	5 $\frac{3}{4}$ to 6 $\frac{1}{2}$
Ives' Seedling	79 to 82	4 $\frac{1}{2}$ to 4 $\frac{1}{2}$
Norton's Virginia.....	103	12 $\frac{1}{2}$
Catawba.....	84 to 88	6 to 8 $\frac{1}{2}$

These grapes were picked during the two weeks between the 23d of October to the 8th of November, which accounts for the difference in the degrees of saccharine in the grapes. The longer they remain on the vines before the frost affects them, the greater the degree of sugar that accumulates, as in the Norton Virginia, above. They were picked last, and all at one time, thus giving one quality of juice. S. P. Williams' vineyard yielded 5,500 pounds, principally the third year's bearing. J. M. Sterling had 16,900 pounds. The company have a very fine cellar at the Point, and their pleasant grounds have been a favorite place of resort during the grape season, being about seven miles from the city, and the weather having been unusually fine and the roads good.

Diedrich & Breisacher of Detroit own about fourteen acres, located on Plum Creek, not far from Monroe, which, for yield of grapes and quantity of wine made, excels any of the vineyards. They have picked this year about 230,000 pounds of grapes, mainly Concord and Delaware, with a small portion of Catawaba, from which they have made over 20,000 gallons of wine. During the past year they have built a splendid wine cellar on their grounds, which is constructed on strictly scientific principles, and furnished with all the most approved appliances and accessories for wine-making. The wine is

stored in immense casks, and allowed to remain two years before it is placed in market, thus attaining full maturity and ripeness. The increasing business of this firm demands more room, and the coming year they expect to erect more and larger buildings. The Detroit office of this firm supplies the demand for the fine wines made by them.

The vineyards of the late Christopher Bruckner and George W. Bruckner (Snake Islands, Tamarack, and Henrietta vineyard of Plum Creek), are among the most highly cultivated of any in the country. Mr. Bruckner devoted the last years of his life to the improvement and development of native grapes, bringing to this work a thorough knowledge of the European modes of cultivation, theories of scientific men of all countries, and the result of deep study and extended experiments of his own. The yield this year has been over 28,000 pounds of grapes, and about 2,000 gallons of wine.

M. Paulding's vineyard, near La Plaisance Bay, contains about five acres, all of the vines having borne for the first time this year, yielding 20,000 pounds of grapes; 1,350 gallons of wine were made. The fruit from these vines was very large, plump, and remarkably uniform in size. J. W. Rusig & Bro. have four acres of vines, from which they have received over 6,000 pounds of grapes. Joseph Weir's fine vineyard, south of Monroe, on Plum Creek, yielded him 30,000 pounds, from which 2,700 gallons of wine was made of red and white ConCORDS and Delaware. Anthony Weir had about half that quantity, say 16,000 pounds and 1,500 gallons of wine. Joseph Sedlaezek has a vineyard comprising six acres of vines in the Third Ward in this city, probably one of the most attractive spots in Monroe. The grounds are upon the summit of a gentle elevation, handsomely ornamented with fine shade trees, and the place presents a very pleasing aspect from the street. We understand this property is in market. His crop this year was about 12,000 pounds.

The Goetler Brothers, from a vineyard of five acres, received

about 20,000 pounds of grapes. Doestler & Munch, C. Trost, Christian Greening, Geo. R. Hurd, J. Van Wormer, S. G. Clarke, and other small grape-growers, from whom no figures were obtained, had fine crops, estimated, at inside figures, 60,000 pounds, so that the aggregate yield in the vicinity of Monroe the present year will not fall short of 600,000 pounds, and about 50,000 gallons of wine. The manner of cultivation differs with different men, as is generally the case, sometimes, however, the location and soil exerting some influence upon the mode of treatment. A limestone soil is requisite, and a location near a large body of water is very desirable. While some vines in the city and further inland were nipped by the frost before the twenty-first of October, those at the Point, and in Bruckner's vineyards, both near the lake, escaped until the fifth of November. Still again, the vineyard of M. Paulding, located away from any body of water, was equally fortunate in escaping injury from frost, when others not far distant were badly bitten. There seems, therefore, to be some element in the atmosphere besides moisture, which has an effect, "for better or worse," upon the vines.

The styles of trellis for supporting the vines are various. Some use simply upright posts six feet high; others are composed of galvanized wires, attached, at intervals of ten or fifteen feet, to posts set in long rows; others still, of long poles, inclined at angles of forty-five degrees, meeting at the top. Of this style we have seen but one. The favorite method is that of wires. Trimming is another point requiring great care and close study. The late Mr. Bruckner claimed that every vineyard in or near Monroe could be as safely guarded from early frost by proper trimming as those on the islands or lake shore.

His Henrietta vineyard was so managed, that while vineyards adjoining lost their leaves and fruit by frost, the vines in this remained green, and the fruit fresh and delicious.

HOW STILL WINE IS MADE.

The grapes, when brought from the vineyard, are ground through a grating mill, set so as to break the skin of the berry.

but not so close as to crack the seeds. As the grape forms the foundation of all wine, whether "still" or "sparkling," it is of the grerest importance that only well matured ripe grapes be used, and then sorted as carefully as those designed for table use. If a single green or unripe cluster be allowed to pass the mill, no future effort can call it back, as it mingles with and deteriorates the finer qualities of the whole. Here, too, it must be determined the kind of wine to be made, for if white wine is to be made, it must be pressed immediately, while if red wine is desired, it must stand for a time in order to extract the coloring matter from the skins. If it is desired to make press wine, the grapes fall directly from the mill to the press, which is furnished with a slated curb, and the wine is immediately pressed out; when the pulp and skins, or husks, as the pomace is termed, is put in a tight vat or cask and allowed to pass the first fermentation, being treated just like wine, and is termed brandy material. Where grapes are pressed immediately after grinding, most varieties make a white wine, although some have a dark-colored pulp and consequently make a red wine, but this is not the case with all black grapes. As the wine runs from the press, it is conducted through rubber tubes to the store-casks in the cellar below. These casks, as fast as filled, are close by small sand-bags, so as to prevent the admission of air as far as possible, while the gas, which the wine gives off during its fermentation, is allowed to escape.

Another and better means of accomplishing this, is by fitting tightly to the bung-hole a curved tube, with the open end terminating in a vessel filled with water, the gas escaping by bubbling up through the water, the casks being perfectly airtight. When the bubbling ceases and the wine becomes quiet, the tubes (or sand-bags) are removed, and the casks closely bunged, when it is allowed to rest from one to four months, when it is racked off, leaving all the sediment behind.

The wine, as it is drawn off, is put into clean and well fumi-

gated casks, and is again bunged down and allowed to rest for an indefinite length of time. With the warm weather of spring comes a disturbance in the wine casks; the motion is almost as violent as at first, and the wine must be very carefully watched, not unfrequently requiring a second drawing off ere it settles down for a summer's rest.

The manufacture of sparkling wine has not yet been attempted by our vintners, but doubtless before many years those who now consider it out of reach can have as delicious champagnes on their tables as those which grace the boards of the most opulent, only, to-day. This matter of supplanting foreign wines entirely with those of home manufacture, is a question of but a short time, and the day for sending hundreds of thousands of dollars, each year, to Europe for beverages, will have gone by. The influence of native wines upon drunkenness will also be as beneficial as it has always been in the wine districts of Germany, where drunkards, in fact, are almost unknown.

The quality in grapes, of keeping well through the winter, is beginning to receive attention, and certainly none other can be more highly prized. Now we are almost entirely dependent upon foreign grapes in winter.

The Malaga grapes are brought here in sawdust, and open fresh and delicious,—yet the high prices at which they are sold place them out of the reach of the greater portion of people. The same process in packing, it strikes us, could be adopted for many of our native varieties. The Catawba, Iona, Isabella, and Delaware are all quite hardy, with thick skins, and thus far have proved good keepers. Some of Rogers' Hybrids promise to be very good in this respect. Those who tried packing this fruit say there is nothing better than dry sawdust, which, while it keeps them from the air, does not, like some substances, impart any flavor. Fill all the interstices with this, store in a cool room, and keep there at about an even temperature.

KEUKA.

MICHIGAN AND ARIZONA.

[The following letter is given space with the belief that all who read it will be better satisfied with Michigan.—SECRETARY.]

ST. THOMAS, ARIZONA, June 23, 1871.

A. T. Linderman, Esq. :

SIR,—Your letter of May 3d, inquiring for fruits of Arizona for your fair, is just at hand. Arizona is a terrible desert to all intents and purposes, except a few narrow margins of streams and rivers; and no fruit is raised. My place is the only vineyard in the Territory; and a recent survey (which is, however, doubtful) declares this in Nevada. All the people who settled this valley have left it since the said survey was made (except the Mormon people, whose desire for unapproachable isolation alone prompted the settlement of this forbidding region).

I am left alone, except two or three somewhat transient settlers; and you may have an idea of this country when I tell you that my vineyard of ten acres (three years old) is by all odds the best that Utah, Nevada, and Arizona afford in fruit. My collection embraces the best varieties of European grapes (some forty-five of them); and if it were possible, I would be proud and happy to have them represented at your fair, as it is as good fruit as grows on the shore of Spain. But I do not see how they could be sent fresh, being 480 miles from the nearest railroad (Salt Lake), and the heat at that time up to 110° to 118° Fahr. in the shade.

I could send some specimens of raisins and some figs (dry), and pomegranates possibly fresh; but the circumstances alluded to above will preclude the possibility of fresh fruit reaching you.

Yours respectfully, &c.,

D. BONELLI.

YELLOWS IN PEACHES.

[The following interesting paper, by Prof. Kedzie of the Michigan State Agricultural College, was read before the April Session of 1872, held at Lansing. It was deemed by the officers of the State Pomological Society best to place it before the people as quickly as possible, and it is accordingly given place in this Report.]

Nature has formed our State to be the fruit garden of the West. She has thrown her arms strongly and lovingly around our beautiful Peninsula, by the Great Lakes, which inclose us on three sides, to shield us alike from cold and heat; she has given us a soil of wonderful fertility and variety, and a forest growth which is the astonishment of all beholders, and which only the stupidity and folly of man can banish. Nowhere else in the Northwest can be found such favorable conditions for the growth of fruit. Like the Canaan of old, it is a land of grain and fruit, and flowing with milk and honey, and you pomologists are invited to "Enter in, and possess the land," but like the favored people of old, if you would find yourselves crowned with peace and plenty, you must "drive out the Canaanites"—these "hewers of wood"—who, with axe in hand, are destroying our forests with a remorseless persistency with which the devouring fires of October, 1871, offer no parallel.

The cultivation of fruits is not alone a question of dollars and cents, though their value may be shown to go far up among the millions, when the possible production of the State is considered. Its influence in refining and elevating the masses, if less tangible and more difficult to state in monetary value, is nevertheless no less real or desirable. The food of a race has much to do with determining the type of its civiliza-

tion. The beef of the Englishman, and the rice of the Brahmin, differ not more essentially from each other than do the civilizations of which the Briton and Hindoo are representative specimens. The forces now at work developing and improving the varieties of fruits, and making them "familiar as household words," in all the houses of our land, will have an influence on our national character, which the historian of the future alone can adequately measure. Anne Boleyn, the beautiful and ill-starred Queen of Henry VIII., in a letter to a friend, said her breakfast that morning consisted of "half a pound of bacon and a quart of beer." Suppose on that September morning, instead of pork and beer, she had seated herself to a dish of Early Crawfords, smothered in cream, a cup of Souchong with a light biscuit, and had finished her meal with a melting Bartlett or a buttery Doyenne, how different would have been her sensations as well as sentiments! Perhaps on such a diet she might have saved that beautiful and queenly neck for some better use than to flesh the headsman's sword.

The introduction into common life of delicious fruits—these unbanished inhabitants of Paradise—will serve to elevate and refine the daily life of the masses. I call them the unbanished inhabitants of Paradise, because, though not driven out by fiery-flaming sword, yet they have followed man in his exile; and wherever they are cultivated, loved, and used, our primeval condition of innocent life is restored, and the very odors of Eden float around the vine-clad and fruit-embowered home.

The civilization which is to bless mankind must be addressed to man in all his capacities. Like the ministry of the Founder of Christianity, it will find one of its offices in "breaking of bread for the body." In the work in which you are engaged, you are doing something better and nobler than gratifying the appetite, for you are adding to the forces which are lifting human life into a higher plane, and you ennoble as well as bless.

But I need not waste the hour in telling you of the importance of your calling. To carry coals to Newcastle has never been a paying business, and perhaps there is as little profit in urging the cultivation of fruit upon the attention of the Michigan Pomological Society. It would be more pertinent to discuss some of the difficulties attending fruit culture, and of these I call your attention to the subject of the Yellows in peaches.

It is generally conceded that the peach is a native of Persia. Its botanical name, *Amygdalus Persica*, or Persian Almond, has reference to its supposed origin. It is said to be still found growing wild in Turkey-in-Asia. Another variety, *Amygd. Esculentus*, is a native of Sierra Leone. But wherever found growing wild, it is a native of a warm climate, and wherever cultivated in cold climates, some additional warmth or protection is afforded by nature or art. Thus, in England, it is grown under glass, or trained against a wall. In our own country, when grown north of latitude 40°, it succeeds well only where protected by forests or surrounded by large bodies of non-freezing water. In such circumstances nature affords in the forest the wall-heat, and in the water the glass protection, elsewhere afforded by art. The happy combination of both these influences in our State has fitted Michigan to grow peaches in perfection, although lying mostly north of 42°.

The fact that the peach is a native of a warm climate, and, wherever grown in this country north of 40°, is in a double sense an exotic,—exotic in its origin, and exotic in its range of latitude,—should not be lost sight of in considering the causes which have produced disease.

The European cultivation of the peach is solely to afford a luxury for the rich. As Fulton well says, "It is to our credit that the United States is the only country in the world that, either in ancient or modern times, has produced peaches in sufficient quantities to allow them to become a common mar-

etable commodity ; so cheap that the poor as well as the rich may regale themselves and their families with one of the most wholesome and delicious of fruits at a very small expense and with every prospect that they will still be more abundant and cheap.”—*Peach Culture*, p. 16.

The sole agent which may defeat this alluring prophecy of greater abundance at still less expense is the Yellows; no other disease, not easily remedied, threatens this crop, and if we could devise some effectual remedy for this blight, we might say that the millenium of the peach-eater was “nigh, even at the doors.”

HISTORY OF THE YELLOWS.

The Yellows in peaches, as known in this country, appears to be confined to the United States. Some contend that the disease is known in Europe; thus Mr. Barry, in *Country Gentleman* for November, 1860, p. 302, says: “This affection is by no means peculiar to New Jersey, nor even to the United States. It is known in France; there trees exhibit the same indications; the leaves changing to a sickly yellow hue, with no healthy circulation of the sap.” * * * * “Indeed, this is the same condition described by European authors, under the name of ‘Chlorosis,’ a well-known disease.”

Chlorosis means strictly Yellows; but the Chlorosis of European writers is not confined to the peach tree, but affects other trees also, and even grain crops. Morton, in his *Cyclopedia of Agriculture*, speaks of the barley showing Chlorosis in bad weather, etc., and adds, in a foot-note: “Fruit trees, in badly drained ground, where the roots are always in a lower temperature than is consistent with health, are often similarly affected. Timely drainage, and improvement of the soil where needful, is the only remedy.”

The only symptom in common between European Chlorosis and American Yellows, is the yellow discoloration of the leaf. Any plant may exhibit yellow leaves, when its vitality is impaired or its growth checked. The sere and yellow leaf of

autumn is only a common instance of this character, and affecting a large number of plants at the same time. A tree whose vitality is seriously impaired will exhibit this change much earlier in the season, and, like the hectic flush of the consumptive, may foreshadow its early death.

I think no one familiar with the Yellows in the peach will confound this simple yellowing of the leaf, with "the Yellows." The yellowing of the leaf is only one symptom of this peach malady, and while it is a symptom which will easily attract attention, it is not the most characteristic or important symptom. A peach tree may have yellow leaves, but this alone does not constitute the disease so dreaded by the fruit-grower.

The disease seems first to have attracted attention in Delaware and in the vicinity of Philadelphia. Downing says "About 1800, or a few years before, attention was attracted, in the neighborhood of Philadelphia, to the sudden decay and death of the orchards without apparent cause. From Philadelphia and Delaware the disease gradually extended to New Jersey, where, in 1814, it was so prevalent as to destroy a considerable part of all the orchards. About three or four years later it appeared on the banks of the Hudson (or from 1812 to 1815), gradually and slowly extending northward and westward to the remainder of the State. Its progress to Connecticut was taking place at the same time, a few trees here and there showing the disease, until it became well known throughout most of the warmer parts of New England." *Fruit Trees of America*, p. 600.

By means of young peach trees sent out from nurseries in districts where the disease was prevalent, and from trees raised from pits of diseased peaches, the disease has been widely disseminated. The latter cause is more widely operative than would appear at first sight. A man from some distant region visits a fruit market, and sees peaches on sale which ripened two or three weeks before the usual time; the peaches are

highly colored, and the man flatters himself that he has found a new and valuable variety of the peach, buys the fruit and carefully carries home the pits to raise like valuable varieties for himself and friends. The early maturity and deep purplish color which is characteristic of diseased fruit, are the very qualities which will make a man, inexperienced in fruit, select these kinds as especially worthy of culture. Or a man finds a tree ripening two or three weeks earlier than usual, and hence concludes he has a valuable variety, and he buds great numbers of stocks and sends over the country this new *extra-early* variety. The very symptoms of disease are interpreted as signs of superior excellence; just as the descriptions of heroines in fashionable novels,—transparent skin “where the lily and the rose contend for mastery,” the lustrous liquid eye, the pearly teeth, the sylph-like form,—symptoms that necessitate the heroine to early fill a consumptive’s grave.

That the disease is widely spread need not, therefore, excite our surprise.

The disease has only lately invaded our State, and it has taken its position in a district where of all others we least needed or desired it,—viz., in the fruit belt along the east shore of Lake Michigan. It was first observed in trees imported from New Jersey. The large number of trees required to stock the peach orchards which have been so rapidly planted in the peach belt, made it difficult to find trees in sufficient abundance near home, and trees have been brought from all quarters without much inquiry as to their physical condition, if only the varieties were such as were sought.

SYMPTOMS OF THE YELLOWS.

Downing gives the following as “infallible symptoms” of the disease.

“1. The production upon the branches of very slender wiry shoots, a few inches long, and bearing starved diminutive leaves. These shoots are not protruded from the extremities, but from latent buds on the main portions of the stem and

larger branches. The leaves are very narrow and small, quite distinct from those of the natural size, and are either pale yellow or destitute of color.

“2. The premature ripening of the fruit. This takes place from two to four weeks earlier than the proper season * * * always marked externally (whatever may be the natural color), with specks and large spots of purplish red. Internally, the flesh is more deeply colored, especially around the stone, than in the natural state.

“Lastly, it is the universal opinion of all orchardists that the Yellows is a contagious disease.”

He gives his own opinion that “the contagious nature of this malady is an unsettled point.”

Another symptom not noticed by Downing is a peculiar watery condition of the ripening peach, the taste being insipid; and the peach, if left upon the tree, often dries up into a brownish mass, remaining attached to the tree; and the branch upon which such decayed peaches remain, invariably dies, never leaving out on the return of spring; whereas, if the peaches are removed, the branch may live through part of the succeeding season.

• MODE OF PROPAGATION OF THE DISEASE.

Much diversity of opinion exists on this point. Some suppose it is propagated by use of diseased peach pits in producing nursery stocks, or, at least, the use of pits from trees of enfeebled vitality. Others suppose it is the result of budding trees for many generations of the tree life; *i. e.*, the dying out of a variety from repeated propagation by budding or grafting, instead of producing a tree by seed. Some persons believe a variety of fruit has a limited period of life, just as any individual tree has, and as the tree which is the origin of any variety will grow old and die, so its offspring propagated by budding, must, as a variety, grow old and die like its parent.

Another large class believe the disease is contagious, and capable, like small-pox in the human subject, of spreading

from a diseased tree to healthy trees in the neighborhood, and thus capable of indefinite extension. A modification of the contagious theory is, that the disease is imparted to healthy trees from diseased ones by means of the pollen carried by bees and other insects from the flowers of diseased to the flowers of healthy trees. A sufficient answer to this theory is the fact that trees often exhibit the Yellows before they have ever flowered.

CAUSE OF THE YELLOWS.

A still greater diversity of opinions exist as to the cause of the Yellows.

Some assign as the cause, a condition of enfeebled vitality, arising from poor cultivation, want of pruning, over-bearing, growing on poor soil, and this soil still further impoverished by cropping, etc. That enfeebled vitality alone is not a sufficient cause is shown by the fact that other fruit trees are subjected to the same agencies, and yet do not have the Yellows. The apple, pear, and plum are often enfeebled and impoverished in the same way; the pear may have the blight, and the plum the black knot, but none of these exhibit the true Yellows.

Others speak of this disease as a "consumption," but the assigning of human diseases as explanation of vegetable disease is founded upon a false analogy. If we wished to be facetious, we might reply that one characteristic symptom of consumption is a cough; and I think no one ever heard a Yellowed peach tree cough!

Others give the peach borer as the cause of Yellows; and undoubtedly many cases of supposed Yellows have arisen from the injuries inflicted by the borer.

Others have suggested that "the disease arose from a deficiency of mineral matter to form the prussic acid of the peach-pit;" but the prussic acid consists of carbon, hydrogen, and nitrogen, and contains no mineral matter whatever.

Finally, a fungus attacking the root or bark of the tree has lately been brought forward as the true cause of the Yellows.

I do not attach any great importance to my own opinion as to the cause of Yellows; but if I should advance an opinion, it would be that the Yellows was probably caused by a fungus growth, and that liability to attack by this fungus was very greatly increased by the fact of a tree's being in an enfeebled condition from any cause.

INVESTIGATIONS.

By invitation of the Berrien County Horticultural Association, I visited Benton Harbor last September, inspecting a large number of orchards, and examining as far as possible all classes of diseased trees. Many trees exhibited the well-known symptoms of the Yellows: viz.: purple blotches on the prematurely ripened and somewhat insipid fruit, small wiry branches on the trunk and main limbs, bearing small leaves of a sickly yellow color, and here and there upon the tree shriveled and dry peaches still adhering to the boughs. In many trees having symptoms of the Yellows, peculiar brown spots were found in the inner bark, next the wood; but similar spots were found in trees apparently healthy, and this indication was, therefore, neglected. Some trees suspected of having the Yellows proved to be injured by the borer.

The soil occupied by peach orchards in Benton Harbor is for the most part a gravelly loam,—what would be called a quick and warm soil. In consequence of its porous nature, vegetable matter or humus tends to rapidly disappear from the soil. The liberal dressings of muck and marl which many have applied to their soils, show an intelligent apprehension of the nature and needs of their soil.

I obtained, for a subsequent examination, specimens of diseased wood (roots and branches) leaves, fruit, and a quantity of ashes secured by burning the wood of a tree unmistakably diseased with the Yellows.

MICROSCOPIC EXAMINATION.

Specimens of all the diseased structures, including the wiry shoots, leaves, bark of root and branches, and the fruit, were sub-

mitted to Prof. Beal of the Agricultural College, for microscopic examination, Prof. Beal having very kindly offered to make this examination to search for the presence of any fungoid growth which might assist to account for the disease. Both the fresh material and the same after it had begun to decompose, were submitted to examination under the microscope. As a comparative test, specimens of healthy structure were submitted to the same examination. Prof. Beal detected three or four different kinds of fungoid growth in the diseased structures, but as the same forms of fungus were detected in the healthy structures after decomposition had commenced, the results thus far obtained are simply negative. Prof. Beal does not feel satisfied with the results of this microscopic examination, but proposes further investigation on this point. At his suggestion I budded a healthy tree with diseased buds to propagate the disease, so that an examination may be made from time to time during the growing season. I have also saved the pits from diseased peaches, for a similar purpose.

The detection of fungus as an origin of disease, and separation of it from other forms of fungus growth, are the more difficult from the fact that many fungi are polymorphic, or have two or more forms, and change their forms according to the nature of the substance on which they feed. Thus the barberry rust and the wheat rust were once thought to belong to different families; now they are known to be the same.

A writer in the Gardener's Monthly (quoted in that wide-awake agricultural sheet, the Michigan Farmer), speaking of recent discoveries in cryptogamic botany, says: "It was soon ascertained that a fungus, which usually grows only on dead matter, would change its form and then attack living structures, and again change, according as it fed on various parts of the plant. Thus dead branches in the earth will foster the early fungi; and these, striking through the earth, will attack a living tree, changing its form to fasten on these roots; and then the fungoid matter will so adapt itself as to enter into the whole circulation of the tree."

It may seem that undue importance is attached to this microscopic examination for fungus growth, but the lines of investigation in physical science, into the nature and origin of contagious and epidemic diseases, all converge towards this germ theory of disease. In a recent lecture on "Haze and Dust," Prof. Tyndall says: "Side by side with these researches and discoveries, and fortified by them and others, has risen the germ theory of epidemic disease. The notion was expressed by Kircher, and favored by Linnaeus, that epidemic diseases are due to germs which float in the atmosphere, enter the body, and produce disturbance, by the development, within the body, of parasitic life. The strength of this theory consists in the perfect parallelism of the phenomena of contagious disease with those of life. As a planted acorn gives birth to an oak, competent to produce a whole crop of acorns, each gifted with the power of reproducing its parent tree, and as thus from a single seedling a whole forest may spring; so these epidemic diseases literally plant their seeds, grow, and shake abroad new germs, which, meeting in the human body their proper food and temperature, finally take possession of whole populations. Thus Asiatic cholera, beginning in a small way in the delta of the Ganges, contrived, in 17 years, to spread itself over nearly the habitable globe. The development from an infinitesimal speck of the virus of the small-pox, of pustules, each charged with the original poison, is another illustration."

By similar reasoning, persons have been led to suspect the foreign origin of many diseases in vegetables, especially if the disease exhibits contagious properties; but, unlike the researches in animal disease, the vegetable physiologist has been able, in some instances, to find the fungus origin of disease, and hence to strongly suspect it even when it cannot be found. The writer in the *Gardener's Monthly*, from which I have already quoted, in discussing the probable fungus origin of the Yellows, says: "And now, in regard to the Yellows in the peach tree, we are almost prepared to abandon all we have said

and written about the cause. We do know that in severe weather the interior, or heart-wood, of trees will often be destroyed, while the external layer of wood will escape injury; and that seasons following this, the sap does not ascend freely into the damaged structure, and that weak sprouts appear on the lower portions of the branches, and also that the whole circulation is so enervated that weaker branches and yellow leaves are the consequence. Here are all the symptoms of the Yellows in the peach, and thus we feel safe in believing that like effects sprung from like causes. But we have since learned to attribute precisely the same appearance in white pines, hemlocks, maples, and some other trees, entirely to the attacks of root fungus; and why might it not be the same with the peach-tree Yellows? On this suggestion, we have examined the only peach tree with the Yellows that we have had a chance to see during the past year; and though not entirely satisfied with this one examination, have little doubt that fungus at the root will be found the cause of it. And if so, this will render clear some practices that have been said to result in benefit, and yet seemed enigmas to all of us who acted on other theories. For instance, some have opened shallow trenches about peach trees and poured boiling water in about the roots, and the Yellows have disappeared. We have seen this, and know it to be true. We have seen trees which were yellow for years, become green in this way. Supposing the injury to result from a fungus which fastens itself to the roots, and then works its morphological form through the bark into the structure of the tree, hot water or a heavy dose of potash, applied as Dr. Wood applied it, would destroy the parasite, and thus produce the good result we refer to. Now, we do not feel quite positive about all this. But we see the effects of fungus in the yellow color and behavior of the tree, we have seen an isolated case in which there was fungus at the roots, and we see in experiments which have resulted successfully how well suited they are to remedy a disease which might spring from such a cause."

A similar treatment of diseased trees in Bentor Harbor, by placing ashes in a shallow trench at the root of the tree, and pouring over the ashes and around the roots boiling water, has resulted in curing the tree.

ANALYSIS OF ASH.

The ash obtained by burning a diseased peach tree was carefully analyzed; also the ash from a healthy tree growing in my garden. The results of the analysis are as follows:

	White Yellows.	Healthy Tree.
Carbonate of Potash.....	7.24	10.38
Carbonate of Soda.....	3.82	3.12
Chloride of Sodium.....	.21	.13
Sulphate of Lime.....	1.41	.92
Carbonate of Lime.....	66.61	62.10
Phosphate of Lime.....	13.16	15.71
Carbonate of Magnesia.....	5.05	5.31
Silicic Acid.....	1.40	1.21
Oxide of Iron.....	.84	.92
Moisture and loss.....	.26	.30
	<hr/> 100.	<hr/> 100.

Perhaps the first impression which will arise from looking over these results of analysis will be the close resemblance in their composition. This impression will be strengthened when we reflect how much the composition of ashes of the same kind of plant will vary according to the age of the plant, the kind of soil on which it grows, and the degree of vigor in its development. Perhaps it might with justice be said that the results of chemical analysis, like those of microscopic examination, are merely negative.

But without at once pronouncing on the justice of this conclusion, let us look more carefully at the analysis and see if any significant variation appears in the result. The most marked difference is the excess of carbonate of potash (3.06 per cent) and of phosphate of lime (2.55 per cent) in the ash of a healthy tree over that of the diseased tree. Potash is the most characteristic element in the ash of land plants, just as

soda is in the ash of sea plants. It is found in large quantity in the ash of young and vigorously growing plants, while it is deficient in those of feeble growth. No land plant can grow in its entire absence, nor maintain a vigorous growth where it is deficient. Soils which contain minerals rich in potash (*e. g.*, the feldspars) are capable of prolonged cultivation without exhaustion; hence the strong agricultural capabilities of clay soils. On the other hand, soils which are formed from materials deficient in potash compounds (*e. g.*, silicious soils) are more rapidly exhausted by cultivation; the vigor of trees growing on such soils is not so great as when growing on soils more richly supplied with potash compounds. This is more especially seen in our hardy fruit trees,—the apple and pear.

Now this deficiency of potash in the ash of the diseased peach tree, as far as it indicates anything, shows impaired vitality,—thus giving a chemical reason for the diminished vigor observed in diseased trees. This impaired vitality does not, in my opinion, for reasons already given, constitute the contagious Yellows, but it forms a condition exceedingly favorable for its development, and also a condition under which it is very difficult for the tree to recover when attacked. It is my opinion that not only is the tree enfeebled because it has the Yellows, but it has the Yellows because it was first enfeebled.

It is well known to physicians that an animal in an enfeebled condition is much more liable to be attacked by a contagious disease than is a vigorous one. The difference in physical condition of a person who has taken a full meal, from that of the same person fasting, may make all the difference between perfect immunity from danger or certainty of attack when exposed to a contagious disease. The same law will doubtless hold good in vegetable as well as in animal life. The condition which will render a vegetable liable to an attack of any contagious disease is a condition of enfeebled vitality. On

the other hand, the condition which will best enable any living thing to resist a contagious disease, or to rally from its effects when attacked, is a condition of vigorous vitality.

Let us glance at the conditions which have long been at work, tending to lower the vitality of the peach tree. In all forms of life there are two tendencies, which, in certain respects, are antagonistic. The one is the development of the individual, the other the reproduction of its species. The lower we descend in the scale of life, and in proportion as the individual sinks in importance, so does the reproductive tendency increase. While the higher forms of life produce but one offspring, and at long intervals, the lower forms multiply by thousands, and with astonishing rapidity. So also, individuals, as they are lowered in vitality, become more productive. No class multiplies so fast as the scrofulous or consumptive. In the tree, the formation of woody fibre may be considered as representing this effort at the development of the individual; while the physiological significance of the formation of fruit, is simply an effort to reproduce its species.

Dr. Van Mons, in the cultivation of the pear, has beautifully illustrated the law that the wood-forming and fruit-producing tendencies in a tree, are in inverse proportion to each other. By experiments, running through more than thirty years, he has shown that by checking the vigor of growth, the production of fruit was accelerated, so that seedling pears, which naturally would not fruit before thirty years of age, were made to fruit at four.

It seems to me, that in the peach we have pushed the fruit-producing tendency to a dangerous excess; and we can recover a healthy equilibrium only by favoring the wood-forming tendency, at the expense of present fruitfulness.

The characteristic of the peach, as now grown in the United States, is a rapid and precarious development. If we consider the rapidity of its growth, as compared with other fruit trees growing under the same circumstances, we shall see that it

must be an enormous feeder. It grows twice as fast as the apple, and three times as fast as the pear; comes into fruitage with corresponding speed, and bears fruit with an abundance seldom equaled by either apple or pear. Under such circumstances, it requires an abundant supply of ash elements for the production of healthy woody fibre, and fruit.

When we remember also that the peach is naturally a product of a warm climate, and is here out of the latitude fitted to develop in perfection its luscious qualities; that a warm exposure and heating soil are here required to ripen it to perfection and pack its flushing cheeks full of condensed sunshine, and as a consequence, warm (*i. e.*, sandy and light) soils have generally been given up to its cultivation, we can see that too antagonistic conditions of growth have been brought together: First. A cultivation requiring a large amount of nourishment to sustain the rapid growth of wood and the large amount of fruit; and, second, this demand made upon a class of soils least adapted by their composition to supply the demand. Need we wonder that such a system of cultivation, continued generation after generation, should develop an abnormal condition in the peach tree?

The peach belongs to a botanical order which would, under natural conditions, be in full vigor at twenty years, and ought to be in comparative vigor at forty; should begin to fruit at ten to twelve, and be fruitful for thirty years more. But from forced cultivation it begins to bear at four or five,—often earlier still, and instead of living to two score, it has disappeared and been forgotten before one score is reached. Hear the testimony of William Reid, an eminent cultivator in New Jersey: "All peach trees die, some sooner, some later, according to varieties. Eight or ten years are as long as we can get peach trees to live here. They have never lived much longer than this for the last forty years; and occasionally when we have very severe winters, they do not live as long. But they invariably die off in the same way, with small, yellow, sickly

leaves." * * * "It invariably puts out these small, imperfect shoots, with yellow, sickly foliage. This is what people call Yellows. I would like to know what other disease trees die of, or if there is any other way. If so, I would like to know what the appearances were."—Horticulturist, 1861, p. 129.

It seems, then, that the peach tree dies of premature old age in New Jersey before it arrives at the period of puberty, and that the peach-growers consider this the normal and proper way to die, and wonder if any one pretends there is any other way.

Now the condition of enfeebled vitality, which would naturally result from the methods of culture pursued in many sections of the country, would give just the conditions in which a contagious disease would most easily be contracted, and in which it would work with the greatest virulence. Or, if the disease is caused by a fungus growth attacking the tree, then this enfeebled condition would itself invite the attack of fungus, for it is upon this class of vegetable structures that fungus growths most readily attach themselves and work with the greatest energy. Impaired vitality invites the attack of parasites. The stunted apple tree is most liable to the bark-louse, and it is the starved calf that wants to scratch its back in spring.

REMEDIAL MEASURES.

On the subject of the contagious character of the Yellows I have but little to say, as I have had but little experience, and many leading pomologists disagree among themselves on this point. Mr. Reid of New Jersey denies any contagious character in the Yellows; Mr. Barry of New York doubts; but the very careful and candid statements of Mr. Thomas in the horticultural editorials of the Country Gentleman, of Mr. Fay in the Prairie Farmer, and of other gentlemen, go to clearly prove the contagious character of some forms of the Yellows. But whether contagious or not, I believe with Downing, "it is much the wisest to *reject* the benefit of the doubt,

and act upon the principle that it is so." When trees are certainly affected with the Yellows, unless we reserve them to try the effect of remedial measures, they should be destroyed, root and branch,—not merely chopped down, but torn out by the roots, and even then not left to act as possible centers of contagion. Make them into firewood, and don't wait for the wood to season before burning it.

As the ash elements are of prime necessity in the formation of woody fibre, give each tree a liberal dose of unleached ashes,—at least a peck to each tree. If the unleached ashes cannot be obtained, use four times as much leached ashes. Leached ashes are very valuable, for they still contain insoluble compounds of potash, which are slowly set free for the use of the tree; also all the phosphate of lime contained in the original ash, besides the carbonate of lime.

If ashes cannot be obtained, some commercial salt of potash may be employed. Crude saltpetre can be obtained at wholesale in New York for \$7 per hundred pounds. A half-pound of this dissolved in water and applied to each tree would have a very marked influence in stimulating its growth.

The cheapest commercial salt of potash is the Stassfurt salt of Prussia. It contains from 23 to 30 per cent. of sulphate of potash, and can be obtained in Baltimore at from \$14.85 to \$18.50 per ton.

The woody growth of peach trees must be encouraged, even at the expense of present fruitfulness, if we hope for healthy trees. The ascertained deficiency of potash in the ashes of diseased trees would point to this element as an important means of securing healthy growth.

If the trees show symptoms of the Yellows, the treatment by drenching the roots with boiling water is easily applied, and if the first treatment is not sufficient, the dose may be frequently repeated. It is done by drawing away the soil from the root of the tree and pouring into the hole a pail of boiling

water. The combined treatment, used in Benton Harbor, of ashes and boiling water should be freely tried.

The practice of some nurserymen, who are ambitious to have large and fine-looking trees to tempt the thoughtless purchaser, of stimulating the growth in the nursery rows by liberal use of stimulating manure, should be discouraged. Stable manure in the unfermented state is so freely used that the trees are forced and pushed forward as if by hot-house culture. When such trees are transferred to the orchard, they are unhealthy, the growth is checked from want of the stimulating food to which they have been accustomed, and they soon die, or fall a prey to the Yellows.

Of course no pomologist needs to be warned to avoid using buds from diseased trees.

Too much importance cannot be attached to the proper selection of peach-pits to form the nursery stocks. I heartily indorse the advice so often given, to select pits from districts known to be free from the Yellows. Nurserymen are too careless or indifferent on this point, or else are unable to obtain a sufficient supply from healthy districts.

When going through the canning-house of the Excelsior Packing Co., in Benton Harbor, where large quantities of peaches are canned, I saw many baskets of peach-pits, and was told that they were already sold to nurserymen, and that it was difficult to fill all the orders for peach-pits. Yet very many of these peach-pits were, unquestionably, from diseased peaches, and all of them were from trees in which the fruit-forming tendency was excessively developed, at the expense of the constitutional vigor of the tree, and not one of these pits was fit for use as nursery stocks. The nursery stock, like Caesar's wife, "should be above suspicion." It is very important that peach-pits, for nursery stocks, should be obtained from regions free from the Yellows. But this is not enough: no pits should be used from trees where the wood-forming vigor is so far checked that the leaves have a yellow cast. Many seedling

varieties, growing on the clay lands of the central portions of our State, are almost worthless for fruit, but they have a wonderful vigor of growth, and their leaves are dark green until killed by the frost. Let such trees be cultivated for their pits alone ; let these be used for nursery stocks, and let the bud be inserted at the height at which the top should begin to form, so that the body of the tree shall be formed entirely of this vigorous wood, and I think we may soon bid farewell to the Yellows in peaches.

R. C. KEDZIE

State Agricultural College, Lansing, March 29, 1872.

CONCERNING THE METEOROLOGY OF MICHIGAN.

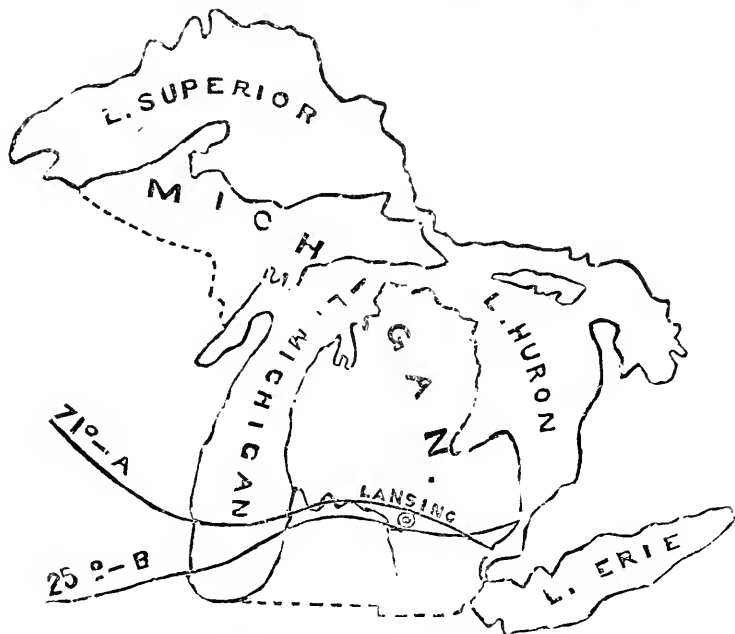
There was a problem in science not many years since, that was bandied hither and thither among the learned ones of our State, the subject of close study, careful investigation, fierce discussion, and, sad to relate, the cause of much bad feeling and bad blood among our men of science. That question, of interest and concern to every man within our borders, was this: Is the geology of the State of Michigan separate and distinct from the general formation of the surrounding territory? In other words, in the great volume of the history of world-building, does the chapter headed "Michigan," form a story of its own, without necessary dependence on, or connection with, her sister characters in this geological drama? It is needless to state that within our own boundaries this doctrine was received with almost universal favor. It was a matter of self-gratulation to us all. It patted our State pride upon the back, to think that we had been made the subject of special anxiety and solicitude in the world's birth. But, alas! this petted hypothesis went the way of all untruth. Our philosophers had failed to bear in mind, that matters which they had regarded as specially characteristic of our lake-locked peninsula—that lake and drift—were but matters of to-day in the calendar of geological history; that in that yesterday when the real work of the world's building was accomplished, Michigan was but a speck, undistinguished by drift or lake-barrier, from the great and monotonous plane of the United States; that only till the evening of that day did the great lakes hover around us with their protecting wings, after there had been borne down to us the fertile drift that bears our noble forests, and makes meadow and cornfield blossom with their abundance.

Though consigned to an early grave of refutation, we are not to speak slightly of this forgotten theory. It has accomplished its mission. The false has its mission to fulfill, as well as the true. It has taught us to investigate with more conscientious care our relations to Nature and her laws. In the discussion attending this very fallacious theory, it was brought out and proven, beyond the possibility of a peradventure, that Nature has surrounded us with a network of forces and laws such as she has, perhaps, extended to no other portion of the earth's surface. That not only has she endowed our State with attractions that make her a peculiar and a favored land, but she has, as it were, issued for our use alone a code of "storm laws," under whose administration are meted out to us the heat and cold, the winds and storms, of each successive season. In other words, that Nature has given to Michigan a meteorology distinctively her own. But it will be argued, As you have but just denied to the State any geological history peculiarly her own, on what principle can you ascribe to her her own meteorology? To ask the question is to answer it. The question of Michigan's meteorology is determined by the State as we find her to-day. It has little to do with her building or foundation in the historic past, but is marked out by the features that now distinguish her,—her lakes and her forests. Let us now spend an instant in the examination of these features that thus mark her countenance; these controlling agencies that distinguish her atmosphere from that of, perhaps, any land the sun shines upon. I have mentioned her forests. When whole volumes have been written on this one theme alone, it were worse than folly to attempt, in a twenty-minutes essay, to even designate the wonders accomplished by this herculean power. But two of its effects strike us at a glance,—Temperature and Humidity. Upon the first head we can do no better than to give the words of one eminent in the field of scientific research: "It has hardly yet been found practicable," says Marsh, "to absolutely measure, sum up, and equate the vital influence of the forest and its products upon temperature,

and on this subject investigators differ much." Becquerel declares it certain that the removal of forest is accompanied by an elevation of temperature. Boussingault states that in plats of the same latitude and the same elevation above the sea, the forest exerts an influence equal to 2° F. But the question of temperature is affected much more powerfully by the mechanical influence of the forest, in impeding the fierce and destructive currents of storms. Within the range of its influence the atmosphere may be comparatively quiescent, while beyond the blast may be raging furiously.

Now, upon the question of humidity, observes Stacht: "As the lightning-rod abstracts the electric fluid from the stormy sky, so do forests attract rain from the clouds. The forest, presenting an immense surface of evaporation, gives to all the adjacent territory an abundance of rain and dew. Forests, in a word, exert on the interior of a continent an influence like that of the sea upon the climate of its islands and coasts, watering the soil, and thereby insuring its fertility." There is a pretty fable of old that gives the poetry of this philosophy,—of the laurel of Ferro, that furnished sparkling water to the inhabitants. The water flowed from its foliage, drop by drop. Every morning the sea breeze drove a cloud toward this wonderful tree, which attracted it to its huge top, where it was condensed to a crystal liquid. But it is needless to longer dwell upon the influence of so powerful an agency as the forest growth of our State. It suffices to remember the fact, that by destroying the power of this agency, and counteracting its beneficent influence, the culture of certain fruits, once possible over every part of our surface, is now confined to the narrow lee of Lake Michigan. And this brings us to the second agency already mentioned,—the great lakes that encircle us. Upon what principle does their power depend? Professor Tyndall has responded to our query, by denominating it the latent heat of water. Water is heated by the sun's rays with exceeding slowness, but it also cools with equal deliberation; and in this cooling it gives out, in lowering of temperature,

heat enough, when converted into mechanical power, to elevate a weight of 1,390 pounds one foot. Now, in giving this great amount of heat, what an immense influence a large body of water must exert on the adjoining atmosphere! The heat of the summer is stored up in the lake, and given out again in the winter. Hence the absence of extremes. The summer of the lake shore can never reach that scorching heat of the inland summer, nor its winters the destructive cold of the inland winter. Territories hundreds of miles south of us may grow fruits that our summers cannot ripen; but at the same time our evergreens are wholly unknown to them,—they could not endure the extremes of their winters. Let me illustrate this great principle by aid of a rude chart of our State:



NOTE.—It is desired that these lines be regarded not as absolute curves of temperature, but simply as illustrations of the general influence of lake bodies upon our climatology.

Let this line (a) represent the isotherm of our summer,—say 71° . It comes upon us from the westward, from latitudes

far above ours, but upon approaching Lake Michigan it receives a wonderful downward deflection. This influence extends many miles inward, but upon approaching the center of the State this isotherm rises once more, giving to the line, as it crosses the State, an arched or convex appearance. In other words, the body of Lake Michigan exerts a wonderful cooling influence on the heat of our lakeside summers; and while furnishing an abundance of warmth to bring to a luscious maturity our fruit harvest, yet it is deprived of that fervid aridity so often characteristic of our inland summers. Take, again, the isoeheim of our winters,—say 25° . It comes upon us from latitudes far below ours; but on approaching Lake Michigan it receives a wonderful upward inflection, the influence of the lake extending inward some miles; but this line, on approaching the center of our State, begins to sweep downward, thus presenting a slightly saucer-shaped or concave appearance. In other words, the body of Lake Michigan exerts upon our lakeside winters a powerful influence of warmth, thus depriving them of the rigorous and fatal extremes which characterize the season in Central Michigan. Many, doubtless, have witnessed the phenomenon described by Judge Ramsdell, on some of our cold and crispy winter mornings, when a dense cloud of vapor is seen steaming up from the lake, as far as the eye can reach. The great lake is exerting itself, with an almost conscious power, to temper the stinging air; and when we remember that every foot of its 23,000 square miles of surface is at work, we cannot wonder at the magnitude of the result. This same protecting blanket of watery vapor it is, that the gardener uses on a reduced scale. Has he a choice tree that he desires to guard from the late frosts, he places underneath it a tub of water. Does he wish to protect his early vegetables, he freshly stirs the earth at evening, that the watery vapor arising may envelop each tender shoot in its protecting embrace. This equalizing influence of the great lakes it is, that makes the temperature of the winter, within their influence, almost

incredible to those not thoroughly conversant with our surroundings. This it is that explains that cold January of 1864, when at Traverse Bay the thermometer marked 14° below zero, at Milwaukee 40° , at Chicago 24° , at St. Louis 20° , and at Memphis, Tenn., nearly 700 miles directly south of Traverse Bay, 16° below zero.

Now, the mighty influence for good upon the climate of our State which these two giant agencies, lake and forest, may exert if left untrammelled in their efforts, we can readily conceive. The great lakes, fortunately, are beyond our touch. Each season finds them performing their mission unvaryingly, and without the shadow of turning. They are beyond the let or hindrance of man.

But not so with our forests. In forcing them aside before the advancing tide of civilization and improvement, zeal has exceeded wisdom in their destruction. The great balance-wheel of the seasons is shattered, and now, in the place of its invariable revolution, in the place of regularity of rain-fall and uniformity of temperature, we are fast becoming inured to ruinous and destructive extremes. Now a year of scorching and consuming drought, in which the evaporations from our farm's surface exceeds the rain-fall by from four to six inches, succeeded by a year of disastrous precipitation of this excess in floods and freshets, are no longer a subject of wonder and remark. But above all, on our winters these changes have wrought with twofold disaster. A winter in the Northwest is now ever a matter of fear and concern, not infrequently of deep anxiety. It comes upon us with a "nipping and eager air," and with temper evidently soured by the changes which it finds each year departing has left in its wake. It interests and concerns not alone the man of science, who, snugly ensconced in his study, traces with zeal, on his weather-map, the courses and sweeps of some great and destructive storm, notes the date of intensest cold, or the weather prognostics of his morning paper, but every farmer of the State, however

great his contempt for "means and curves." On his hopes for the coming harvest each winter sets its seal,—either the promise of hopeful fruition, or the forerunner of disappointment and defeat. But above all, to the fruit-grower the winter approaches, a season of grave doubts and fears. There is an unpleasant sensation of speculation in connection with his wealth of orchards, and he is ever harrassed by the fear that the weather gods may beget some disastrous "corner" that shall swallow up his all in destruction and defeat. It is this era of ruinous change that has given us the winter of '72, but just departed, and has made it a season of marked exception throughout the entire Northwest. The learned prognostics of the weather-wise sage, that with each recurring autumn flood the country press, have for once been realized. Then, too, there were other heralds of the rigor of the approaching winter, that no careful observer of nature could have failed to appreciate,—our migratory birds. Unusually early in the past autumn they might have been seen,—robin, grackle, and lark,—each with its separate clan, in noisy concourse over the approaching crisis, then silently winging their way to their winter quarters in the South. With an average season, many of our more common species, as the robin, and, on occasions, the crow, leave behind them in their flight a half-dozen individuals or more, who pass with us the winter, constituting as it were a committee of general arrangement, who preserve affairs in good order for the return of their friends with the approach of vernal warmth. But during the past winter, with the exception of our regular winter residents, a quartette of golden-winged woodpeckers (*Caloptes Auratus*) are all that have been visible with us, their fair-weather friends not coming to encounter with them the approaching inclemency.

But, without sacrificing longer your patience or attention, let us include at a glance the lesson which the season has left us. This can the better be accomplished by aid of the appended

table, giving the prominent characteristics of our winters for the past nine years, and applicable to Central Michigan. Each winter, as given in the table, includes, of course, the month of December of the preceding year :

WINTER OF	Average Temperature.	Maximum Temperature.	Minimum Temperature.	Times at or be- low zero.	Snow-fall in inches.
1864.....	26°.63	55°	-22°	18	.....
1865.....	24°.35	51°	-17°	8	42
1866.....	23°.53	54°	-15°	7	36½
1867.....	24°.67	53°	-15°	11	53½
1868.....	21°.01	49°	-19°	11	42
1869.....	25°.73	60°	-15°	7	44
1870.....	25°.92	46°	-19°	6	60
1871.....	25°.22	57°	-11°	9	5½
1872.....	21°.35	53°	-23°	13	38

Thus it will be seen that the winter of '72 presents a mean temperature many degrees lower than for many years known. In fact, only once in the last decade has it been equaled in its uniform and continued severity,—in the season of '68, when the terrible cold of that long-remembered February reduced the mercury of many a thermometer, in the northern portions of our State, to a solid lump of glistening metal. This table presents, in addition to the temperature, some startling conclusions concerning the snow-fall. The wonderful deposition of 1870, of five feet on a level, was it possible to suppose it deposited in a single mass, would, of course, prove most ruinous in its effects; but, coming in gentle installments, it was rapidly dissipated under the influence of a comparatively mild season. The leading characteristics of the past winter may be inferred from the following table :

MONTH.	Average Temperature.	Maximum Temperature.	Minimum Temperature.	Times at or be- low zero.	Snow in inches	Rain and melt- ed snow.
December.....	21°.12	41°	-23°	5	11½	1.75
January.....	21°.59	41°	- 8°	3	9½	.43
February.....	21°.34	53°	-16°	7	5	.49

In this should be included the month of March, in which the records indicate the thermometer three times below zero, and a snow-fall of twelve inches.

During the past season, the observations at the Agricultural College have, on eighteen different occasions, recorded from 1° to 29° below zero, and on one instance furnished an average for the entire twenty-four hours of 10° below zero. Concerning the rain-fall, also, the season has proved an exceptionable one. The total amount of rain and melted snow measured at the College the past season, is but little over three inches, or much less than one-half of what is properly apportioned as our winter's supply.

To say that to the grain-grower and to the fruit-grower alike the rigors of the past season have been the source of grave fears, would be but a tame rendering of the keen anxiety which has universally prevailed. Vague and portentous rumors concerning the influence on the fruit harvest have spread abroad. But little can be positively asserted concerning the matter at present. Though in most, if not all parts of the State, the temperature commonly regarded as fatal to the fruit-bud of the peach, viz., 15° below zero, has been reached, yet so much depends on accompanying circumstances, the condition of the tree, the degree of exposure to winds, and the elevation above lake level, that results will probably prove as various as present opinions.

Perhaps no better illustration of the backward condition of the present spring can be presented, than the condition of hor-

gricultural affairs at the College the present season, compared with their appearance in the spring of '71, at corresponding dates. On March 13th, 1871, Prof. Tracy found the frost very nearly out of the garden beds. On March 17th hot-beds were in progress, roses and other delicate plants transplanted without injury. On March 29th the earth was found so completely settled that the rolling and sodding of the lawns was completed at once. Nursery stock was transplanted, and large evergreens removed. On April 2d, the date of to-day, the vegetable garden was wholly under plow, and many seeds committed to earth. During the present spring the season has turned a decidedly cold shoulder to the Professor, and has permitted him to accomplish but little, though he stands ready to insert the entering wedge at the first opportunity.

And now, before closing, allow a word to be uttered concerning the handful of men scattered throughout the State of Michigan, who are endeavoring by hard study, careful and accurate observation, to reduce to an intelligible form the laws which govern wind and storm, summer's heat and winter's cold; in other words, to make a true science of Michigan's meteorology. To the utility of their labors, no wherefore can be raised. The era when intelligent men greeted with jibes and sneers the attempt to make a practical application of the truths of science, has long since disappeared in the shadowy past. The question is, Shall these workers receive the support and encouragement of the practical men of this State, for whose good they labor? It would seem that the Honorable Commissioner of Agriculture holds views of his own upon this theme. In his last monthly report for the month of February, just at hand, he announces, with that startling perspicuity which poor Dr. Parry lacked so fatally, "that the publication of meteorological tables is from this date discontinued, by order of the Hon. Commissioner." This monthly of the Commissioner's has been, by the way, from its origin, a most startling and unique document. Issued each month from one

to three weeks behind the proper time, it is sent out to our farmers laden with matters of vital national importance, from "The quantity of jute consumed per annum in the manufacture of artificial hair," to "The effect of street sewage on the vital statistics of Calcutta." The only saving feature of the entire document has been these same meteorological tables, and with their expulsion its value is not worth the cost of mail transportation.

Shall records, carried with painstaking care through a half score of years, be now made useless because of one man's whim? Rather let the matter be set right at once, that the truths which, through years of hard study, Nature has gradually unfolded to our view, shall, in our own State at least, be placed in the hands of those whom they most interest and most concern. Let it not be objected that the co-operation of scientific men cannot be secured. They even now stand ready for the work, as they have ever stood, craving no other compensation than the benefits they believe will accrue to the world and to science, when the man of science and the man of practice shall press forward in the good work together, shoulder to shoulder.


W. K. KEDZIE.

Agricultural College, April 2, 1872.

TABLES OF

FRUITS. FLOWERS. TREES. ETC.

THE arrangement is in the botanical order according to Gray's
"Forest, Field, and Garden Botany."

 The figures upon the left and right-hand margins will aid
the reader in tracing the line of any variety.

No.	NAMES.	Origin.	Use.	PECULIARITIES OF		
				Class, etc.	Height or Shape.	Hardness.
VINE FAMILY.						
<i>Labrusca</i> (Fox Grape).						
1	Adirondac.....	N. Y.....	fruit	vine	vigorous.....	hardy ..
2	Catawba.....	N. C.....	fruit .....	.....	vigorous.....	hardy ..
3	Concord.....	Mass.....	fruit .....	.....	strong.....	hardy ..
4	Creveling.....	Penn.....	fruit .....	.....	vigorous.....	hardy ..
5	Delaware.....	Ohlo.....	fruit .....	.....	weak	hardy ..
6	Diana.....	Mass.....	fruit .....	.....	vigorous.....	hardy ..
7	Hartford Prolific	Conn.....	fruit .....	.....	strong.....	hardy ..
8	Iona.....	N. Y.....	fruit .....	.....	weak.....	hardy ..
9	Ives' Seedling	Ohio.....	fruit .....	.....	strong.....	hardy ..
10	Martha	Penn.....	fruit .....	.....	vigorous.....	hardy ..
11	Maxatawney.....	Penn.....	fruit .....	.....	vigorous.....	hardy ..
12	Northern Muscadine.....	N. Y.....	fruit .....	.....	strong.....	hardy ..
13	Rebecca.....	N. Y.....	fruit .....	.....	weak	not h'dy
14	Rogers No 1, Goethe ? ..	Mass.....	fruit .....	.....	vigorous.....	hardy ..
15	" No 3, Massas'tit ? ..	Mass.....	fruit .....	.....	vigorous.....	hardy ..
16	" No 4, Wilder ? ..	Mass.....	fruit .....	.....	vigorous.....	hardy ..
17	" No 7, ? ..	Mass.....	fruit .....	.....	vigorous.....	hardy ..
18	" No 15, Agawan? ..	Mass.....	fruit .....	.....	vigorous.....	hardy ..
19	" No 22, Salem ? ..	Mass.....	fruit .....	.....	vigorous.....	hardy ..
<i>Estivalis</i> (Sum'er Grape)						
20	Herbemont	S. C. ? ..	fruit .....	.....	strong.....	$\frac{1}{2}$ hard
21	Norton's Virginia.....	Va.....	fruit .....	.....	vigorous.....	hardy ..
22	Rulander .....	.....	fruit .....	.....	vigorous.....	$\frac{1}{2}$ hard
<i>Cordifolia</i> (Wint. Grape).						
23	Clinton	N. Y.....	fruit .....	.....	strong.....	hardi'st
ROSE FAMILY.						
PRUNUS.						
<i>(Amygdalus)</i> <i>Nana</i> .						
	Flowering Almond.....	Asia.....	orn.....	shrub	2-8 feet.....	hardy ..
	White Flower'g Alm'd.	Asia.....	orn.....	shrub	2-8 feet.....	hardy ..

PLANTS, Etc.			PECULIARITIES OF FRUIT, Etc.				Season,	No.
Foliage, etc.	Flowers.	Product.	Size.	Shape.	Color.	Flavor.		
large.....	medium	round.....	black....	sweet....	early...	1
mildews..	medium	round.....	red.....	sweet....	late....	2
coarse....	product	large...	round.....	black....	sweet....	early...	3
large.....	medium	round.....	black....	sweet....	early...	4
mildews..	small...	round.....	red.....	v. sweet..	early...	5
mildews..	small...	round.....	red.....	v. sweet..	medium	6
coarse....	product	large...	round.....	black....	harsh....	v. early	7
mildews..	medium	oval.....	red.....	v. sweet..	early...	8
coarse....	product	medium	round.....	black....	.....	v. early	9
.....	large...	round.....	green, yel	sweet....	early...	10
.....	medium	round oval.	green, wht	v. sweet..	late....	11
coarse....	medium	round.....	red.....	foxy.....	early...	12
mildews..	medium	oval.....	amber....	v. sweet..	late....	13
.....	product	v. large.	oval.....	yel. green	sweet....	late....	14
.....	large...	round.....	red.....	.....	early...	15
.....	large...	round.....	black....	sweet....	early...	16
.....	17
.....	large...	roundish..	maroon..	foxy.....	medium	18
.....	large...	round.....	red.....	sweet....	early...	19
smooth...	small...	round.....	black....	sweet....	late....	20
smooth...	small...	round.....	black....	sweet....	late....	21
round....	small...	round.....	black....	v. sweet..	medium	22
smooth...	product	small...	round.....	black....	harsh....	medium	23
barrow... rose.....	
narrow... white.....	

No.	NAMES.	Origin.	Use.	PECULIARITIES OF		
				Class, etc.	Height or shape.	Hardness.
	<i>(Amygdalus) Communis.</i>					
	Hard Shell Almond....	Asia	nuts ..	tree.....	.....	$\frac{1}{2}$ hard.
	<i>(Amygdalus) Persica.</i>	Asia	fruit ..	tree.....	.....	.....
1	Bergen's Yellow.....	N. Y.	amat'ur	.....	.....	bud ten
2	Cole's Early Red.....	America ..	market.	.....	.....	hardy..
3	Columbia	N. J.	am. can	.....	.....	bud ten
4	Coolidge's Favorite....	Mass.....	.....	.....	.....	hardy..
5	Crawford's Early.....	N. J.	market.	.....	.....	bud ten
6	Crawford's Late.....	N. J.	mar can	.....	.....	bud ten
7	Delaware White? .....	.....	market.	.....	.....	hardy..
8	Druid Hill.....	Maryland ..	.....	.....	vigorous.	.....
9	Early Tillotson.....	N. Y. ....	.....	.....	mildews.	not heal
10	Early York (serrate)....	.....	.....	.....	.....	bud h'y
11	Galbraith.....	Illinois ..	market.	.....	.....	.....
12	George the Fourth.....	N. Y.	amat'ur	.....	vigorous.	hardy..
13	Grosse Mignonne.....	France.....	.....	.....	.....	.....
14	Hale's Early.....	Ohio.....	mar etc.	.....	vigorous.	bud h'y
15	Heath Cling	Maryland ..	mar etc.	.....	vigorous.	hardy..
16	Honest John (yellow)....	.....	mar etc.	.....	.....	.....
17	Jacques' Rareripec	Mass.....	.....	.....	.....	.....
18	Kenrick's Heath.....	N. E.	market.	.....	vigorous.	.....
19	La Grange	N. J.	can etc.	.....	vigorous.	hardy..
20	Large Early York.....	N. Y.	mar etc.	.....	vigorous.	hardy..
21	Late Admirable.....	France.....	can etc.	.....	vigorous.	hardy..
22	Lemon Cling	S. C.	can etc.	.....	vigorous.	hardy..
23	Morris White.....	.....	can etc.	.....	vigorous.	bud ten
24	Mountain Rose .....	.....	.....	.....	.....	.....
25	Oldmixon Cling .....	.....	family..	.....	.....	.....
26	Oldmixon Free .....	.....	market.	.....	.....	.....
27	President.....	L. I.	family..	.....	.....	.....
28	Pullen's Seedling.....	.....	.....	.....	.....	.....
29	Red Cheek Melocoton ..	America ..	market.	.....	.....	bud ten

PLANTS, Etc.			PECULIARITIES OF FRUIT, Etc.					No.
Foliage, etc.	Flowers.	Product.	Size.	Shape.	Color.	Flavor.	Season.	
-----	-----	-----	-----	-----	-----	-----	-----	-----
-----	-----	-----	-----	-----	-----	-----	-----	-----
reniform.	small	mod'ate	large...	roundish...	yellow....	best	Aug....	1
globose..	small	fruitful.	medium	roundish...	red.....	v. good ..	Jul Aug	2
reniform.	small	mod'ate	large...	globular....	brown ...	best.....	Sept ...	3
globose..	small	fruitful.	large...	roundish...	red & w'te	v. good..	Aug....	4
globose..	small	fruitful.	v. large.	oblong.....	yellow....	good.....	Aug....	5
globose..	small	-----	v. large.	roundish...	yellow....	good.....	Sept ...	6
globose..	small	fruitful.	medium	oblong.....	white	good.....	Sept ...	7
globose..	small	fruitful.	large...	roundish...	red. white	v. good..	Sept ...	8
serrate...	small	mod'ate	medium	round	red.....	v. good ..	Jul Aug	9
serrate...	large.....	product	medium	roundish...	red & w'te	v. good ..	Jul Aug	10
globose..	small	-----	medium	roundish...	red & w'te	v. good ..	Jul Aug	11
globose..	small	mod'ate	-----	-----	-----	-----	Aug....	12
globose..	large.....	-----	large...	roundish...	yel. red ..	v. good ..	Aug....	13
globose..	large.....	product	medium	round.....	red.....	good.....	July ...	14
reniform.	small	mod'ate	v. large.	oblong.....	white	best	Sep Oct	15
-----	-----	-----	-----	-----	-----	-----	-----	16
reniform.	small	product	large...	roundish...	yellow....	good.....	Sept ...	17
reniform.	small	product	v. large.	oblong.....	white	good.....	Sept ...	18
reniform.	small	product	v. large.	oblong.....	white	best	Sep Oct	19
globose..	small	product	large...	roundish...	red & w'te	v. good ..	Aug....	20
globose..	small	product	v. large.	oval.....	w'te & red	best	Sept ...	21
reniform.	small	product	v. large.	oblong.....	yellow ...	good.....	Sep Oct	22
reniform.	small	product	large...	oval.....	white	v. good ..	Sept ...	23
-----	-----	-----	-----	-----	-----	-----	-----	24
globose..	small	-----	large ..	round-oval.	white- red	best	Aug Sep	25
globose..	small	product	large...	roundish...	red.....	v. good ..	Aug Sep	26
globose..	small	-----	large...	round-oval.	green	v. good ..	Sept ...	27
-----	-----	-----	-----	-----	-----	-----	-----	28
globose..	small	product	large...	round-oval.	yellow ...	good.....	Aug Sep	29

No.	NAMES.	Origin.	Use.	PECULIARITIES OF		
				Class, etc.	Height or Shape.	Hardiness.
30	Reeves' Favorite	N. J.	market.	.....	.....	hardy..
31	Smock	N. J.	market.	.....	.....	bud ten
32	Snow	America	family	.....	.....	.....
33	Stump the World	N. J.	market.	.....	.....	.....
34	Susquehanna	Penn. ....	.....	.....	.....	.....
35	Switzerland .....	.....	mar etc.	.....	.....	.....
36	Troth's Early Red	N. J.	market.	.....	.....	.....
37	Walker's Early .....	.....	market.	.....	.....	.....
38	Ward's Late Free	America	market.	.....	.....	.....
39	White Imperial	N. Y.	family	.....	.....	.....
40	Yellow Alberge	France ..	.....	.....	.....	.....
41	Yellow Rareripe	America	mar etc.	.....	.....	bud ten
	<i>Var. laevis (Nectarine).</i>					
1	Boston	Mass. ....	.....	.....	.....	hardy..
2	Downton	England	.....	.....	.....	.....
3	Early Violet	France ..	.....	.....	.....	.....
4	Elruge	England	.....	.....	.....	.....
5	Pitmaston's Orange	England	.....	.....	vigorous	.....
	<i>Armeniaca (Apricot).</i>					
1	Breda	Africa ..	.....	.....	.....	.....
2	Early Golden	N. Y. ....	.....	.....	vigorous	.....
3	Hemskirke	England	.....	.....	.....	.....
4	Large Early	France ..	.....	.....	vigorous	.....
5	Moorpark	England..	.....	.....	.....	.....
6	Peach	Piedmont	.....	.....	.....	.....
	<i>Spinosa Insititia, or Domes- tica (Garden Plum).</i>					
1	Coe's Golden Drop	England	.....	.....	branches	.....
2	Coe's Late Red .....	.....	.....	.....	downy	.....
3	Columbia	N. Y. ....	.....	.....	.....	vigor'ns
4	Damson .....	.....	cook, etc	.....	slender, etc.	.....
5	Domine Dull	N. Y. ....	.....	.....	long, smooth	.....
6	Duane's Purpie	N. Y. ....	.....	.....	very downy	.....

PLANTS, Etc.			PECULIARITIES OF FRUIT, Etc.				Season.	No.
Foliage, etc.	Flowers.	Product.	Size.	Shape.	Color.	Flavor.		
globose..	small	product	large...	roundish...	yellow ...	good.....	Sept	30
reniform.	small	product	large...	oval.....	yellow ...	good.....	Sept. Oct.	31
reniform.	small w'te .....	.....	large...	globular ...	white....	v. good ..	Ang. Sep.	32
globose..	small	product	large...	roundish...	white-red	v. good ..	Sept	33
.....	.....	.....	large...	globular ...	yellow ...	v. good ..	Sept	34
.....	.....	.....	.....	.....	.....	.....	.....	35
globose..	small	product	medium	roundish...	red.....	v. good..	July Aug.	36
globose..	small	product	large...	roundish...	white-red	v. good..	Aug	37
globose..	small	product	large...	roundish...	white-red	v. good..	Sept	38
globose..	small ....	.....	large...	.....	white....	best	Aug	39
globose..	small ....	.....	medium	roundish...	yellow ...	good.....	Aug	40
globose..	small	mod'ate	large...	roundish...	yel. red..	v. good..	Aug	41
globose..	small	product	large...	round-oval.	yel. red..	good.....	Aug	1
reniform.	small ...	.....	large...	round-oval.	green-red	v. good..	Aug	2
reniform.	small ....	.....	large...	round-oval.	green-red	v. good..	Aug	3
reniform.	small ....	.....	medium	round-oval.	green-red	v. good..	Aug	4
globose..	large.....	.....	large...	roundish...	or. yellow	best.....	Aug	5
.....	buds red.	product	small ..	roundish...	orange...	best.....	July Aug.	1
.....	.....	product	small ..	roundish...	orange...	v. good..	July	2
.....	.....	.....	medium	roundish...	yellow....	best.....	July	3
.....	.....	.....	large...	roundish...	orange...	v. good..	July	4
.....	.....	mod'ate	large...	roundish...	orange...	best.....	July Aug.	5
.....	.....	.....	v. large	roundish...	orange...	best.....	July Aug.	6
.....	.....	product	v. large	oval.....	yellow...	v. good..	Sept	1
.....	.....	v. prod.	medium	round.....	purp. red.	v. good..	Oct	2
.....	.....	product	v. large	globular ...	purple....	good.....	Aug	3
.....	.....	product	small ..	oval.....	purple....	good.....	Aug. Sep.	4
.....	.....	product	medium	long, oval..	purple....	good.....	Aug. Sep.	5
.....	.....	.....	v. large	oval.....	purple...	good.....	Aug	6

No.	NAMES.	Origin.	Use.	PECULIARITIES OF		
				Class, Etc.	Height or shape.	Hardiness.
7	German Prune.....	Ger., etc..	dry, etc.	.....	smooth .....	.....
8	Green Gage.....	France.....	.....	.....	short jointed..	.....
9	Imperial Gage.....	N. Y.....	.....	.....	dark, downy..	.....
10	Jefferson.....	N. Y.....	.....	.....	downy.....	.....
11	Large Green Drying.....	England..	.....	.....	smooth	vigorous
12	Lawrence's Favorite.....	N. Y.....	.....	.....	smooth.....	thrifty..
13	Lombard.....	N. Y.....	.....	.....	purple, glossy	hardy..
14	McLaughlin.....	Maine....	.....	.....	smooth	hardy..
15	Prince's Yellow Gage.....	N. Y.....	.....	.....	.....	hardy..
16	Red Diaper	France ..	.....	.....	smooth	slow....
17	Reine Claude de Bavay...	France....	.....	.....	smooth	vigorous
18	Smith's Orleans.....	N. Y.....	.....	.....	glossy, purple	vigorous
19	Washington.....	N. Y.....	.....	.....	downy.....	hardy..
<i>Châcasa (Chickasaw).</i>						
20	Chickasaw.....	America ..	.....	.....	.....	.....
21	Miner.....	La.....	.....	.....	sm'th d'k red	.....
22	Wild Goose.....	Tenn.....	.....	.....	.....	vigorous
<i>Cerasus (Garden Red Cherry).</i>						
1	Kentish or Early Rich'nd	Belgium..	.....	.....	spreading....	hardy..
2	Late Kentish.....	.....	.....	.....	spreading....	hardy..
3	Morello, Common.....	.....	.....	.....	spreading....	hardy..
4	Morello, English.....	.....	.....	.....	.....	.....
<i>Avium (Bird Cherry).</i>						
5	Belle de Choisey.....	France....	.....	.....	upright	hardy..
6	Belle Magnifique.....	.....	.....	.....	.....	hardy..
7	Bigarreau or Yel. Spanish	.....	market.	.....	spreading....	.....
8	Black Eagle.....	England ..	.....	.....	.....	.....
9	Black Tartarian.....	Russia....	market.	.....	upright .....	.....
10	Cleveland.....	Ohio.....	.....	.....	.....	.....
11	Early Purple Gaigne.....	.....	.....	.....	spreading....	hardy..
12	Early White Heart.....	.....	.....	.....	r. upright....	.....
13	Elton.....	England ..	.....	.....	.....	.....

PLANTS, Etc.			PECULIARITIES OF FRUIT, Etc.					No.
Foliage, etc.	Flowers.	Product.	Size.	Shape.	Color.	Flavor.	Season.	
-----	-----	product	large...	long, oval..	blue	v. good ..	Sept	7
-----	-----	product	small ..	round	green	best	Aug	8
-----	-----	product	large...	oval	green	best	Aug	9
-----	-----	mod'ate	large...	oval	yellow....	best	Aug	10
-----	-----	-----	large...	round	gr. yellow	good	Sept	11
-----	-----	product	large...	roundish...	yel. green	best	Aug	12
-----	-----	v. prod.	medium	round-oval.	red	good	Aug	13
-----	-----	product	large...	round	yellow ...	best	Aug	14
-----	-----	product	large...	oval	yellow ...	v. good ..	July, etc.	15
-----	-----	-----	large...	obovate ..	purple ...	v. good ..	Aug	16
-----	-----	product	large...	roundish...	gr. yellow	best	Sept	17
-----	-----	v. prod.	large...	oval	purple....	v. good ..	Aug	18
-----	-----	-----	large...	round-oval.	yellow ...	v. good ..	Aug	19
-----	-----	-----	-----	-----	-----	-----	-----	20
-----	-----	-----	medium	oblong	pur. red..	-----	Sept	21
-----	-----	-----	small...	-----	purple	-----	July	22
-----	-----	v. prod.	medium	round	red	acid v. g'd	June	1
-----	-----	product	medium	round	red	v. good ..	July	2
-----	-----	product	medium	round	black	v. good ..	July	3
-----	-----	-----	large...	heart-sha'd.	black	good	July	4
-----	-----	mod'ate	-----	round	amber....	best	June	5
-----	-----	product	large...	roundish...	red	sub-acid ..	July	6
-----	-----	-----	v. large.	ob. h't sh...	yellow ...	sweet	June	7
-----	-----	mod'ate	large...	ob. h't sh...	d. purple.	rich	June	8
large	-----	-----	large...	heart-sha'd.	black	v. rich ...	June	9
-----	-----	-----	medium	r'd h't sh...	red	v. good ..	June	10
lo'g petioles	-----	good...	medium	r'd h't sh...	purple ...	v. good ..	May, etc.	11
-----	-----	-----	small...	h't shape...	yellow ...	good	May, June	12
red f't stalks	-----	-----	large...	p'k h't sh...	yellow ...	v. rich ...	June	13

No.	NAMES.	Origin.	Use.	PECULIARITIES OF		
				Class, Etc.	Height or Shape.	Hardness.
14	Governor Wood	Ohio.....	.....	.....	round.....	.....
15	Gridley .....	.....	market.....	.....	.....	.....
16	Late Duke .....	.....	.....	.....	.....	.....
17	May Duke .....	.....	.....	.....	fastigiate .....	.....
18	Napoleon Bigarreau.....	.....	market.....	.....	.....	.....
19	Reine Hortense.....	.....	.....	.....	.....	.....
20	Tradescants Black Heart	Europe ..	market.....	.....	.....	.....
	Mahaleb .....	.....	st'k orn .....	.....	.....	.....
	<i>Serotina</i> (Wild Black).....	.....	wood or .....	.....	.....	.....
	<i>Pedus</i> (Bird Cherry) .....	.....	orn .....	.....	.....	.....
	SPIREA (MEADOW SWEET)	.....	.....	.....	.....	.....
	FRAGARIA (STRAWBERRY).....	.....	fruit ...	run. herbs .....	.....	.....
1	Agriculturist	N. J.....	.....	.....	strong	hardy ..
2	Austin	N. Y. ....	.....	.....	vigorous	hardy ..
3	Downer's Prolific.....	Kentucky	nr. mar .....	.....	.....	hardy ..
4	Fillmore	Maryland	.....	.....	moderate .....	.....
5	French's Seedling	N. J.....	.....	.....	vigorous	hardy ..
6	Green Prolific	N. J.....	.....	.....	vigorous .....	.....
7	Hovey's Seedling.....	Mass.....	market.....	.....	vigorous	hardy ..
8	Jenny Lind	Mass.....	market.....	.....	.....	.....
9	La Constante .....	.....	.....	.....	small	not h'y
10	Large Early Scarlet.....	.....	.....	.....	.....	.....
11	Longworth's Prolific	Ohio.....	.....	.....	vigorous .....	.....
12	McAvoy's Extra Red	Ohio.....	.....	.....	.....	.....
13	McAvoy's Superior.....	Ohio.....	.....	.....	vigorous .....	.....
14	Monitor	N. Y. ....	.....	.....	vigorous .....	.....
15	Necked Pine.....	America ..	.....	.....	.....	.....
16	Russell's Prolific.....	N. Y. ....	.....	.....	strong .....	.....
17	Triomphe de Gand.....	Belgium ..	.....	.....	vigorous .....	.....
18	Wilson's Albany	N. Y. ....	.....	.....	vigorous	hardy ..
	RUBUS (BRAMBLE).	.....	.....	per herbs .....	.....	.....
	<i>Occidentalis</i> (Black Rasp- berry).....	.....	.....	curv. canes.	long	hardy ..
1	American Black	America ..	cook, etc .....	.....	.....	.....

PLANTS, Etc.			PECULIARITIES OF FRUIT, Etc.				Season.	No.
Foliage, etc.	Flowers.	Product.	Size.	Shape.	Color.	Flavor.		
-----	-----	v. prod.	large...	h't-shape ..	yellow ...	best	June.....	14
-----	-----	product	large...	h't-shape ..	black	good	J'ne, July	15
-----	-----	-----	large...	ob. h't sh.	red.....	sub-acid ..	July	16
-----	-----	product	medium	ob. h't sh.	red.....	rich	May, J'ne	17
-----	-----	product	v. large	h't shape ..	yel. red..	good	J'ne, July	18
-----	-----	-----	-----	-----	-----	-----	-----	19
-----	-----	-----	large...	h't shape ..	black	good	J'ne, July	20
-----	-----	-----	-----	-----	-----	-----	-----	-----
-----	-----	-----	small ..	-----	black	-----	-----	-----
-----	-----	-----	small ..	-----	red.....	-----	-----	-----
-----	white	-----	-----	-----	-----	-----	May, J'ne	-----
large, d'rk	-----	-----	v. large	conical	crimson..	v. good..	-----	1
-----	-----	mod'ate	large...	roundish...	b. scarlet.	good	early.....	2
-----	-----	product	medium	roundish...	scarlet....	good	early.....	3
l'ge, ro'gh	pistillate.	mod'ate	large...	ob. con	d. crims'n	v. good ..	-----	4
medium ..	-----	product	large...	conical.....	d. scarlet.	good	early.....	5
l'ge, thick	-----	product	v. large	ronnd.....	scarlet...	good	early.....	6
-----	pistillate.	-----	v. large	conical.....	crimson..	good	-----	7
-----	-----	product	large...	conical.....	b. scarlet.	v. good ..	May, J'ne	8
burn	-----	-----	larg ..	conical.....	red.....	best	May, J'ne	9
-----	-----	-----	medium	oval.....	b. scarlet.	v. good ..	v. early ..	10
-----	-----	-----	large...	roundish...	b. crims'n	-----	May, J'ne	11
-----	pistillate.	v. prod.	large...	roundish...	scarlet ...	good	-----	12
-----	pistillate.	product	large...	irregular..	crimson..	-----	-----	13
-----	-----	mod'ate	large...	round. con.	b. scarlet.	-----	-----	14
-----	pistillate.	product	-----	conical.. ..	scarlet ...	-----	early.....	15
large	-----	product	v. large	round. con.	d. crims'n	good	-----	16
-----	-----	-----	v. large	conical, etc.	b. crims'n	v. good ..	-----	17
-----	-----	product	large...	irreg. con.	d. crims'n	good	early.....	18
-----	-----	-----	-----	-----	-----	-----	-----	-----
threes....	white	-----	-----	-----	-----	-----	J'ne, July	-----
-----	-----	-----	small ..	flat.....	black	acid.....	early.....	1

No.	NAMES.	Origin.	Use.	PECULIARITIES OF		
				Class, etc.	Height or Shape.	Hardiness.
2	American White.....	America .....	.....	.....	.....	.....
3	Doolittle	N. Y.	market. ....	.....	branching .....	.....
4	McCormick, or Miami....	Ohio.....	market. ....	.....	.....	.....
5	Ohio Everbearing	Ohio.....	.....	.....	.....	.....
6	Purple Cane.....	America	family .....	.....	.....	.....
	<i>Idrus</i> (<i>Red Raspberry</i>)....	.....	.....	erect canes	tall	tender
7	Catawissa	Penn .....	.....	everbearing	.....	tender
8	Clarke.....	Conn	market.	upright	v. strong	hardy ?..
9	Hudson River Antwerp..	.....	market. ....	.....	short .....	.....
10	Imperial.....	France .....	.....	canes green	.....	.....
11	Orange	Penn	amateur .....	.....	.....	.....
12	Philadelphia.....	Penn	market. ....	.....	.....	hardy..
13	Red Antwerp.....	.....	.....	.....	.....	.....
	<i>Villosus</i> (<i>Blackberry</i>) .....	.....	.....	erect.....	1-6 feet.....	.....
1	Crystal White	Illinois ..	amateur .....	.....	slender	not h'y
2	Dorchester	Mass .....	.....	.....	.....	hardy..
3	Kittatinny.....	N. J.....	market. ....	.....	.....	hardy..
4	New Rochelle or Lawton	N. Y.	market. ....	.....	.....	hardy..
5	Wilson's Early	N. J.....	.....	.....	.....	hardy..
	ROSA (ROSE).					
	<i>Setigera</i> (<i>Prairie</i>).....	America ..	.....	.....	.....	.....
1	Baltimore Belle.....	America ..	climber .....	.....	.....	tender ?
2	President.....	America ..	climber .....	.....	.....	.....
3	Queen of the Prairies ...	America ..	climber .....	.....	.....	hardy..
	<i>Rubiginosa</i> (<i>Sweet Briar</i>)..	Europe ..	.....	.....	.....	.....
4	Common Sweet Briar.....	.....	.....	.....	.....	.....
	<i>Sempervirens</i> (<i>Evergreen</i>).					
5	Bennett's Seedling .....	.....	.....	.....	.....	.....
6	Dundee Rambler .....	.....	.....	.....	.....	.....
	<i>Multiflora</i> .					
7	Seven Sisters.....	.....	.....	.....	.....	.....
	<i>Indica</i> (<i>China, etc.</i>).					
8	Comp d' Hebe.....	.....	.....	hybrid Chi.	.....	.....

PLANTS, ETC.			PECULIARITIES OF FRUIT, ETC.				Season.	No.
Foliage, etc.	Flowers.	Product.	Size.	Shape.	Color.	Flavor.		
.....	small	flat	white.....	.....	.....	1
.....	v. prod.	large...	flat	black	acid .....	.....	2
.....	product	large...	flat	black	sweet....	late.....	3
.....	flat	black .....	.....	.....	4
.....	flat	black .....	.....	.....	5
.....	medium	oblate	pur mar'n	sweet....	early	6
thick	white.....	.....	.....	.....	.....	.....	J. Ju. etc.	.....
.....	product	medium	flat	d. crims'n	rather acid	.....	7
large.....	large...	conical....	bri't crim	sweet....	.....	8
.....	product	large...	conical	dull red..	pleasant ..	.....	9
.....	large...	ronndish ..	bright red	excellent.	.....	10
.....	v. prod.	large...	conical....	orange....	rich.....	.....	11
.....	product	large...	roundish ..	pur. red..	v. good ..	.....	12
.....	large...	globular ...	dark red..	vinous....	.....	13
3-5.....	July Aug	.....
.....	not pro.	medium	oval	cream wh	sweet....	.....	1
.....	large...	ob. con	deep blk'k	high .....	.....	2
.....	product	large...	round. con.	black	sweet....	.....	3
.....	product	v. large.	oval	black	sweet....	.....	4
.....	product	large...	ob. oval ...	black	sweet....	early	5
.....
.....	clusters..	.....	.....	.....	blush wh.	.....	summer..	1
.....	blush .....	.....	summer..	2
.....	large...	globular ...	rosy red ..	.....	summer..	3
.....
.....	single.....	.....	.....	.....	pink .....	.....	.....	4
.....
.....	pure wht.	.....	summer..	5
.....	6
.....	clus. l'rge	.....	.....	.....	bl'h to cr'n	.....	summer..	7
.....	bright .....	.....	large...	beautiful...	br't pink..	.....	summer..	8

No.	NAMES.	Origin.	Use.	PECULIARITIES OF		
				Class, etc.	Height or Shape.	Hardness.
9	George IV.....	-----	-----	hybrid Chi.	-----	-----
10	Madam Plantier.....	-----	-----	hybrid Chi.	-----	-----
11	Aurora	-----	-----	tea-scented	-----	-----
12	Bougere	-----	-----	tea-scented	-----	-----
13	Caroline.....	-----	-----	tea-scented	-----	-----
14	Devoniensis	-----	-----	tea-scented	-----	-----
15	Gloire de Dijon.....	-----	-----	tea-scented	-----	-----
16	Homer.....	-----	-----	tea-scented	-----	-----
17	Appoline	-----	-----	Bourbon...	-----	-----
18	George Peabody.....	-----	-----	Bourbon...	-----	-----
19	Hermosa	-----	-----	Bourbon...	-----	-----
20	Joseph Gourdon.....	-----	-----	Bourbon...	-----	-----
21	Mrs. Bosanquet	-----	-----	Bourbon...	-----	-----
22	Paul Joseph.....	-----	-----	Bourbon...	-----	-----
23	Queen of the Bourbons..	-----	-----	Bourbon...	-----	-----
24	Sir Joseph Paxton	-----	-----	Bourbon...	-----	-----
25	Souvenir de la Malmaison	-----	-----	Bourbon...	-----	-----
26	Imperatrice Eugenie....	-----	-----	Chi or Beng	-----	-----
	<i>Moschata Hybrid.</i>					
27	America	D. C.....	-----	Noisette...	very strong	-----
28	Celine Forestier	-----	-----	Noisette...	-----	-----
29	Lamarque	-----	-----	Noisette...	-----	-----
30	Solfaterre	-----	-----	Noisette...	-----	-----
	<i>Centifolia (Provence).</i>					
31	Common Moss	-----	-----	moss	vigorous	-----
32	Common Provence	-----	-----	Provence ..	-----	-----
33	Dwarf Burgundy	-----	-----	Provence ..	-----	-----
34	Luxembourg.....	-----	-----	moss.....	luxuriant...	-----
35	White Bath.....	-----	-----	moss.....	-----	delicate
	<i>Damascena (Damask).</i>					
36	Madame Hardy.....	-----	-----	-----	-----	-----
	<i>Lutea ?</i>					
37	Harrison's Yellow	-----	-----	-----	-----	-----

PLANTS, Etc.			PECULIARITIES OF FRUIT, Etc.				Season.	No.
Foliage, etc.	Flowers.	Product.	Size.	Shape.	Color.	Flavor.		
-----	-----	-----	v. large	-----	dark crim	-----	summer..	9
-----	in clust're	-----	-----	-----	pure wh't	-----	summer..	10
-----	-----	-----	-----	-----	yel. rose.	-----	summer..	11
-----	-----	-----	large..	-----	d'p blush	fine.....	-----	12
-----	-----	-----	large..	-----	rosy flesh	-----	perpetual	13
-----	-----	-----	large..	-----	cream wh	-----	perpetual	14
-----	-----	-----	large..	full	yellow...	-----	perpetual	15
-----	-----	free blm	-----	fine form..	rosy pink	-----	perpetual	16
-----	-----	-----	-----	double....	light pink	-----	perpetual	17
-----	-----	-----	-----	-----	dark crim	-----	perpetual	18
-----	-----	bl'm pro	large..	double....	l'gt blush	-----	perpetual	19
-----	-----	-----	-----	-----	rosy flesh	-----	perpetual	20
-----	-----	-----	large..	double....	pale flesh	-----	perpetual	21
-----	-----	-----	-----	-----	violet pur	-----	-----	22
-----	-----	pro bl'm	-----	-----	fawn.....	-----	perpetual	23
-----	-----	free bl'm	-----	-----	deep rose	-----	perpetual	24
-----	-----	-----	-----	-----	pale flesh	-----	perpetual	25
-----	-----	-----	v. large	-----	clear rose	v. sweet..	perpetual	26
-----	-----	free bl'm	-----	-----	cream yel	-----	perpetual	27
-----	-----	free bl'm	-----	-----	pale yel..	-----	perpetual	28
-----	-----	-----	v. large	-----	pale lem'n	-----	perpetual	29
-----	-----	-----	-----	-----	saf. yel..	fragrant..	perpetual	30
-----	-----	bl'm pro	large..	full.....	-----	-----	summer..	31
-----	-----	-----	large..	double....	rose	v. sweet..	summer..	32
-----	-----	-----	-----	-----	-----	-----	-----	33
-----	-----	free bl'm	-----	-----	pur. crim	-----	summer..	34
-----	-----	-----	-----	-----	pure wh't	-----	summer..	35
-----	-----	-----	large..	double....	white....	-----	summer..	36
-----	-----	-----	-----	double....	yellow...	-----	summer..	37

No.	NAMES.	Origin.	Use.	PECULIARITIES OF		
				Class, etc.	Height or Shape.	Hardiness.
38	Persian Yellow.....	.....	.....	.....	.....	.....
	<i>Not Referable?</i>					
39	Arthur de Sansal.....	.....	.....	.....	.....	.....
40	Baronne Prevost.....	.....	.....	.....	vigorous.....	.....
41	Caroline de Sansal.....	.....	.....	.....	vigorous.....	.....
42	Dr. Arnal.....	.....	.....	.....	vigorous.....	.....
43	Dr. Arnold.....	.....	.....	.....	.....	.....
44	Gen. Jacqueminot.....	.....	.....	.....	.....	.....
45	Giant des Batailles.....	.....	.....	.....	dwarf.....	.....
46	Gen. Washington.....	.....	.....	.....	.....	.....
47	L'Enfant du Mont Carmel.....	.....	.....	.....	vigorous.....	.....
48	La Reine.....	.....	.....	.....	.....	.....
49	Lord Raglan.....	.....	.....	.....	.....	.....
50	Lion des Combats.....	.....	.....	.....	.....	.....
51	Madame Laffay.....	.....	.....	.....	.....	.....
52	Madame Rivers.....	.....	.....	.....	.....	.....
53	Madame Charles Wood.....	.....	.....	.....	vigorous.....	.....
54	Mrs. Elliott.....	.....	.....	.....	.....	.....
55	Pæonie.....	.....	.....	.....	good grower.....	.....
56	Portland Blanche.....	.....	.....	hy. per.....	.....	.....
57	Pius IX.....	.....	.....	.....	.....	.....
58	Prince Albert.....	.....	.....	.....	.....	.....
59	Sydonie.....	.....	.....	.....	.....	.....
	AMELANCHIER.					
	<i>Canadensis (June-Berry).</i>	America..	or. etc.	shrub or tr.	10-30 feet ..	hardy..
	PYRUS.					
	<i>Communis (Pear).</i>	Europe ..	table...	tree.....	.....	hardy?.
1	Bartlett.....	England ..	mar etc.	shoots y. br	upright .....	.....
2	Belle Lucrative.....	Belgium ..	des. etc.	yel. brown.	spreading	blights.
3	Beurre Bosc.....	Belgium ..	des. etc.	br. olive ..	.....	.....
4	Beurre Clairgeau.....	France....	market.	reddish	vigorous.....	.....
5	Beurre d'Anjou.....	France....	mar etc.	yel. brown.	spreading .....	.....
6	Beurre Diel.....	Belgium ..	mar etc.	.....	vigorous.....	.....

PLANTS, Etc.			PECULIARITIES OF FRUIT, Etc.					No.
Foliage, etc.	Flowers.	Product.	Size.	Shape.	Color.	Flavor.	Season.	
				double.....	gold. yel.		summer..	38
								39
		ab. bl'm	v. large	full.....	deep rose	best ..	perpetuat	40
luxuriant					clear flesh	best ..	perpetual	41
		free blm	large...	double.....	br't crim.	best ..	perpetual	42
								43
		free blm			crim. scar		perpetual	44
		free blm			fiery crim		perpetual	45
		free blm	v. large		rosy car..		perpetual	46
			v. large	full	pur. red..		perpetual	47
			v. large	double.....	rosy lilac.	sweet....	perpetual	48
		free blm			fiery crim		perpetual	49
					red scar..		perpetual	50
			large...	full	rosy crim		perpetual	51
		free blm			pale flesh		perpetual	52
					brill. red.		perpetual	53
		ab. bl'm	v. large		rosy pur..			54
		free blm			cherry red			55
					pure wh't		perpetual	56
		pro bl'm	v. large		pur. red..	best.....	perpetual	57
								58
								59
	white		ber like		purplish ..	sweet....		
ovate	white.....	product	large...	tap. to s'k.	green, etc	high	sum. etc..	
folded		v. prod.	large...	ob. pyr	yellow....	vinous...	Aug. Sep.	1
		product	medium	variable ..	green	sweet....	Sept	2
		regular.	large...	pyriform...	russett...	sweet....	Oct ?	3
		product	large...	pyriform...	blushed..	sweet....	Oct. Nov.	4
			large...	ob. pyr	greenish..	vinous...	Sept. Oct.	5
leafbli'ts		product	large...	pyriform...	yellow....	sweet....	Sep. Dec.	6

No.	NAMES.	Origin.	Use.	PECULIARITIES OF		
				Class, etc.	Height or Shape.	Hardness.
7	Beurre Easter.....	.....	des. etc.	red. yellow	vigorous.....	blights..
8	Beurre Giffard.....	France...	mar. etc	yel. brown.	moderate .....	.....
9	Beurre Langelier.....	Jersey ...	.....	yel. brown.	vigorous.....	.....
10	Bloodgood.....	N. Y.	tab. etc.	red. brown.	moderate ..	.....
11	Buffum	R. Island.	tab & m	reddish	vig. upright..	.....
12	Chaumontel	France...	.....	slender .....	.....	.....
13	Clapp's Favorite	Mass.	market.	red. brown.	vig. upright..	.....
14	Dearborn's Seeding.	Mass.	table...	red. brown.	.....	.....
15	Doyenne Boussock.....	Belgium .	tab & m	red. brown.	up. spreading	.....
16	Doyenne d'Ete.....	Belgium .	tab & m	red. yellow.	upright.....	.....
17	Doyenne White.....	France...	table...	light brown	upright .....	.....
18	Duchesse d' Angouleme.	France...	mar. etc	yel. brown.	strong.....	.....
19	Flemish Beauty	Belgium .	mar. etc	olive brown	luxuriant ....	.....
20	Glout Morceau.....	Belgium .	dessert.	dark olive .	spreading....	blights..
21	Howell.....	Conn.	mar. etc	red. yellow.	upright .....	.....
22	Kirtland.....	Ohio.....	amat'ur	olive brown	moderate .....	.....
23	Lawrence.....	L. Island	mar & d	yel. brown.	moderate	hardy..
24	Louise Bonne de Jersey .	France...	mar. etc	olive brown	upright .....	.....
25	Onondaga	Conn	mar. etc	olive brown	vigorous.....	.....
26	Osband's Summer	N. Y.	mar. etc	yel. brown.	.....	.....
27	Rostiezer.....	.....	amat'ur	olive brown	straggling....	healthy
28	Seckel	Penn.	des. etc	olive brown	symmetrical .	hardy..
29	Sheldon.....	N. Y.	mar. etc	yel. brown.	erect.....	hardy..
30	Stevens' Genesee.....	N. Y.	amat'ur	dark gray..	.....	.....
31	Tyson.....	Penn.	des. etc.	ol. yel. br.	upright .....	.....
32	Urbaniste.....	Belgium .	.....	yel. brown.	mod. vig.....	.....
33	Vicar of Winkfield	France...	mar. etc	dark ol. br.	thrifty	hardy..
34	Waterloo?.....	.....	amat'ur	ol. br. gray.	vigorous.....	.....
35	Winter Nelis	Belgium .	des. etc	red. brown.	straggling ..	hardy..
	<i>Malus (Apple)</i>	Asia	fruit ...	tree.....	20-50 feet....	hardy..
1	American Gold. Russet..	.....	des. etc	red. gray br	upright	tender..
2	American Sum. Pear	America .	desert..	slender	slow, large...	hardy..

PLANTS, Etc.			PECULIARITIES OF FRUIT, Etc.				Season.	No.
Foliage, etc.	Flowers.	Product.	Size.	Shape.	Color.	Flavor.		
			large ..	roundish...	green	sweet	Jan. Mar.	7
			medium	pyriform...	yellow ...	vinous...	Aug.....	8
			medium	pyriform...	yellow ...	vinous...	Nov. Jan.	9
		regular.	medium	turbinate ..	yel. rus ..	aromatic.	July	10
		regular.	medium	ob. obov...	yellow....	.....	Aug. Sep.	11
			large ..	pyriform...	yellow....	sweet....	Nov. Dec.	12
		v. prod.	large ..	ob. pyr....	lem. yel..	sweet....	Aug.....	13
		v. prod.	small...	round pyr..	light yel..	sweet....	Aug.....	14
			large ..	obovate....	deep yel..	sweet....	Sept	15
			small...	round ob...	yellow....	sweet....	July Aug.	16
			medium	obovate....	pale yel..	high.....	Sep. Oct..	17
			v. large.	obovate....	green yel.	sweet....	Sep. Oct..	18
		product	large ..	obovate....	pale yel..	sweet....	Sept	19
			large ..	variable....	green yel.	sweet....	Dec. Feb.	20
early....		product	large ..	round pyr..	light yel.	vinous...	Sep. Oct..	21
			medium	obovate....	russet....	sweet....	Aug. Sep..	22
			medium	ob. pyr....	lem. yel..	sweet....	Nov. Dec.	23
		product	large ..	ob. pyr....	blushed..	rich.....	Sep. Oct..	24
			large ..	ob. pyr....	yellow....	vinous...	Sep. Oct..	25
		prolific.	small...	obov. pyr..	yellow....	sweet....	July Aug.	26
		prolific.	small...	obl. pyr....	blushed..	sweet....	Aug. Sep..	27
		prolific.	small...	obovate....	blushed..	sweet....	Aug. Sep.	28
		g. bear.	medium	round obo.	russet....	sweet....	Sep. Oct..	29
			large ..	roundish...	yellow....	sweet....	Aug. Sep.	30
		tardy ..	medium	ac. pyr....	blushed..	sweet....	Aug. Sep.	31
			medium	ob. pyr....	pale yel..	rich.....	Sep. Oct..	32
		product	large ..	long pyr....	pale yel..	good.....	Oct. Jan..	33
		product	large ..	ob. pyr....	blushed..	vinous...	Sep. Oct..	34
		regular.	medium	round obo.	russeted..	sweet....	Nov. Jan.	35
	white, etc							
serrate...	reddish...	product	small...	conical....	russet....	sub-acid..	Nov. Dec.	1
	white	product	medium	round.....	striped...	sub-acid..	Aug. Sep.	2

No.	NAMES.	Orig. in.	Use.	PECULIARITIES OF		
				Class, etc.	Height or Shape.	Hardiness.
3	Autumnal Strawberry	N. Y.			upright	
4	Baccolinus				thrifty	
5	Bailey Sweet	N. Y.		dark	vigorous	
6	Baldwin	Mass.		red. brown	spreading	tender
7	Belmont	Va.	table	light olive	spreading	tender
8	Ben Davis	Ky.		yellowish	large, upright	hardy
9	Benoni	Mass.	table	slender br.	small, upright	
10	Broadwell	Ohio		red. brown	spreading	
11	Buckingham	Va.		red. dark	upright	
12	Carbage					
13	Carolina Red Jane	N. C.	table	slen. dark	upright	hardy
14	Cole's Quince	Mass?		red. brown	spreading	
15	Cooper		table	red. slender	spreading	cankers
16	Crain's Spice					
17	Cullasaga	N. C.				
18	Danvers' Win. Sweet	Mass.		gray brown	rapid growth	
19	Davidge	Illinois?				
20	Domine	N. Y.		reddish	symmetrical	
21	Duchess of Oldenburg	Russia?	cooking	stout br'wn	small	
22	Dyer	France	table	dark, erect	spreading	not h'y.
23	Early Harvest	N. Y.	tab cook	red. brown	spread. small	short liv
24	Early Pennock		cooking	erect, dark	upright	
25	Early Strawberry	N. Y.		slen. olive	upright, large	
26	English Golden Russet			slen. olive	spreading	
27	Esopus Spitzenburg	N. Y.		slender	drooping	tender
28	Fallowater	Penn.		stout, dark	rapid spread	short liv
29	Fall Janneting	Conn.		stout, dark	vigorous	
30	Fall Orange	Mass.	cooking	red. diverg.	strong, erect	hardy
31	Fall Pippin	America		stout, b'wn	spreading	short liv
32	Fall Wine			stout, dark	slender, med.	not h'y
33	Fall Winesap	Illinois			drooping	hardy
34	Fall Swaar of the West			stout, dark		hardy

PLANTS, Etc.			PECULIARITIES OF FRUIT, Etc.				Season.	No.
Foliage, etc.	Flowers.	Product.	Size.	Shape.	Color.	Flavor.		
-----	-----	product	medium	r'd ob.	blushed ..	sub-acid..	Aug. Sep.	3
-----	-----	product	small ..	round.	striped...	sub-acid ..	Dec. M'h.	4
-----	-----	product	large....	round.	striped ..	sweet....	Oct.	5
large.....	-----	product	large....	flat	striped ..	sub-acid ..	Oct. Jan.	6
crenate...	-----	product	large....	oblong....	blushed...	sub-acid ..	Oct. Dec.	7
large.....	whitish..	product	large....	oblong....	striped ..	sub-acid ..	Dec. Jan.	8
thin, long	white?...	product	small ..	round.....	striped ..	sub-acid ..	July Aug.	9
-----	-----	product	large....	round.....	blushed...	sweet....	Dec.....	10
narrow....	-----	-----	large....	conical....	striped ..	sub-acid ..	Oct. Dec.	11
-----	-----	-----	medium	r'd conical	yellow....	sweet....	Sep. Oct..	12
dark	reddish ..	product	medium	oblong....	blushed...	sub-acid ..	June July	13
-----	whitish ..	-----	large....	round.....	yellow....	sub-acid ..	Aug.....	14
-----	reddish ..	-----	large....	flat	striped ..	sub-acid ..	Sep. Oct.	15
-----	-----	-----	small ..	flat	dull red..	spicy	Mar. J'ne	16
-----	-----	v. prod.	large....	round.....	striped ..	sweet....	Jan. Ap'l	17
-----	-----	product	large....	round.....	green	sweet....	Dec. Jan.	18
-----	-----	product	large....	conical....	striped ..	sweet....	Mar. May	19
-----	whitish ..	product	large....	flat	striped ..	acid.....	Oct. Dec.	20
-----	reddish ..	product	medium	flat	striped ..	acid.....	July Aug.	21
narrow....	-----	product	medium	round.....	yellow....	sub-acid ..	Sep. Oct.	22
-----	white?...	not pro	medium	flat?	white....	sub-acid ..	June July	23
-----	reddish ..	-----	large....	conical....	striped ..	acid.....	July Aug.	24
crenate...	whitish ..	l'te bear	medium	conical....	striped ..	acid.....	July Aug.	25
-----	white	product	medium	round.....	russet ...	sub-acid ..	Jan. Feb.	26
crenate...	-----	product	medium	conical....	striped ..	acid	Dec. Feb.	27
large.....	reddish ..	product	large....	round.....	green	sweet? ..	Nov. Dec.	28
-----	-----	product	-----	-----	-----	-----	-----	29
-----	-----	product	large....	round.....	blushed...	acid	Oct Nov?	30
errate....	whitish ..	b'rs y'g	v. large	round.....	yellow....	acid	Sep. Dec.	31
-----	reddish ..	-----	medium	flat	striped ..	sub-acid ..	Sep. Oct.	32
-----	-----	-----	medium	round.....	blushed...	acid	-----	33
-----	-----	-----	large....	roundish...	rus. yel ..	sub-acid ..	Sep. Oct.	34

No.	NAMES.	Origin.	Use.	PECULIARITIES OF		
				Class, etc.	Height or Shape.	Hardiness.
35	Famense			red. brown.	drooping.....	
36	Father Abraham. of Ills. Va.				large.....	
37	Fink	Ohio.....			upright	
38	Fulton	Illinois ..		slen. red. br	large, upright	
39	Gilpin	Va.		shoots dark	slender med..	short liv
40	Golden Sweeting	Conn		erect, stout	spreading....	
41	Gravenstein	Holstein..		red. brown.	spreading....	
42	Grimes' Golden	Va.		stout, dark.	large.....	hardy f.
43	Harrison	N. J.		stout, olive	large, spread.	
44	Hawley	N. Y.			round, ugly..	
45	Hawthornden	Scotland.		red. brown.	small, droop.	
46	Hewes' Virginia Crab....	Va.		sparse.....	large, spread.	
47	High-Top Sweeting	Mass.....		light, red br	upright	hardy..
48	Hocking				spreading....	
49	Horse	N. C.	c'k. dry	light, red br	vigorous.....	
50	Hubbardston Nonsuch ..	Mass.....		gray brown	drooping.....	
51	Hurlbut	Conn.....		stout.....	spreading....	
52	Jerrall					
53	Jersey Black			small		
54	Jersey Sweeting		des. etc.	strong.....	spreading....	
55	Jewett's Fine Red	N. H.				
56	Jonathan	N. Y.	mar etc.	spreading ..		
57	Kentucky	Kentucky				
58	Keswick Codlin	England .	mar etc.	upright.....	vigorous.....	hardy..
59	King of Tompkins	N. J. ? ..		vigorous.....		hardy..
60	Kirkbridge White		mar etc.	strong.....	small	hardy..
61	Ladies' Sweeting		dessert.			thrifty..
62	Lady Apple	France....	des. etc.	v. dark.....	large.....	
63	Large Striped Pearmain..	Kentucky				
64	Large Yellow Bough....		des. etc	light green.	compact.....	
65	Limber Twig	N. C. ? ..		slender		thrifty..
66	Lowell			slender....	round head ..	

PLANTS, Etc.			PECULIARITIES OF FRUIT, Etc.				Season.	No.
Foliage, etc.	Flowers.	Product.	Size.	Shape.	Color.	Flavor.		
.....	reddish ..	product	medium	round	striped ..	sub acid..	Oct. Dec.	35
.....	.....	not pro	medium	flat	striped ..	sub-acid..	M'y, July	36
.....	.....	product	small ..	flat	wh. yel..	sub-acid..	Nov. Jan.	37
.....	white	not pro	large	flat	blushed ..	sub-acid..	Nov. Dec.	38
.....	reddish ..	product	small ..	round	striped ..	sweet	Ap'l, May	39
.....	.....	product	large	round	yellow	sweet	Aug	40
.....	white	late b'r.	large	flat	striped ..	acid	Aug. Sep.	41
.....	.....	product	medium	flat	yellow	sub-acid..	Dec. Mar.	42
.....	.....	.....	small ..	conical	yellow	sub-acid..	April	43
.....	reddish ..	early b'r	large	flat	yellow	sub-acid..	Aug. Sep.	44
.....	red	early b'r	large	flat	striped ..	sub-acid..	July Aug.	45
.....	.....	.....	small ..	round	striped ..	acid	Nov. Jan.	46
.....	whitish ..	product	medium	round	yellow	sweet	June, J'y	47
.....	reddish ..	.....	large	flat	striped ..	sub-acid..	Aug. Sep.	48
.....	.....	product	large	round	yellow	sub-acid..	Aug. Sep.	49
.....	reddish ..	product	large	round	striped ..	sub-acid..	Oct. Dec.	50
.....	.....	.....	medium	flat	striped ..	acid	Dec?	51
.....	.....	.....	.....	.....	.....	.....	.....	52
.....	.....	product	medium	flat	striped ..	sub-acid..	Dec.	53
.....	whitish ..	product	medium	conical	striped ..	sweet	Aug. Sep.	54
.....	.....	product	medium	flat	striped ..	acid	Dec	55
*sparse....	whitish ..	product	medium	oblong	striped ..	sub-acid..	Nov. Jan.	56
.....	.....	.....	large .....	.....	.....	.....	.....	57
.....	whitish ..	product	medium	oblong	yellow	acid	June, Au.	58
.....	.....	product	large	flat	striped ..	sub-acid..	Nov. Jan.	59
.....	whitish ..	product	medium	oblong	yellow	sub-acid..	July, Aug	60
toothed ..	.....	product	large	round	striped ..	sweet	Dec	61
dark	reddish ..	product	small ..	flat	blushed ..	sub-acid..	Dec. Mar.	62
.....	.....	.....	large .....	.....	striped ..	.....	.....	63
crenate ..	whitish ..	not pro	large	conical	yellow	sweet	July, Aug	64
.....	reddish ..	not pro	small ..	conical	striped ..	sub-acid..	Mar. Ap'l	65
.....	.....	product	large	round	yellow	sub acid..	Aug. Sep.	66

No.	NAMES.	Origin.	Use.	PECULIARITIES OF		
				Class, etc.	Height or Shape.	Hardness.
67	Maiden's Blush.....	N. J.....	mar. etc	spreading..	.....	hardy ?.
68	May of Myers		market.	.....	.....	.....
69	Melon	N. Y.....		.....	spreading.....	.....
70	Michael Henry.....	N. J.....	market.	.....	small .....	.....
71	Milam .....		.....	dark.....	round head ..	hardy..
72	Minkler	Illinois ?.	.....	reddish	spreading.....	hardy..
73	Mother	Mass	table...	dark green.	.....	.....
74	Newtown Pippin	N. Y.....	tab. etc.	reddish	large.....	.....
75	Northern Spy.....	N. Y.....	.....	.....	large.....	.....
76	Northern Sweet	Vermont.	eating ..	stout, red..	.....	.....
77	Nickajack	Georgia..	market.	stout	large.....	.....
78	Ortley	N. J.....	eating ..	dark	large.....	tender .
79	Paradise Win. Sweet....	Penn	eating ..	.....	upright .....	.....
80	Peck's Pleasant	R. I.....	eating ..	.....	spreading.....	hardy..
81	Pennock.....	Penn	market.	.....	large.....	.....
82	Perry Russet .....		.....	.....	.....	hardy..
83	Pomme Grise.....		.....	slender .....	.....	hardy..
84	Porter	Mass.....	mar. etc	slender	small	hardy..
85	Primate		eat. etc.	slender	stocky .....	.....
86	Pryor's Red	Va.....	eat. etc.	reddish	large.....	hardy..
87	Rambo	Penn	eat. etc.	.....	upright	tender .
88	Ramsdell's Sweet.....	Conn .....	.....	slender	upright .....	.....
89	Rawles' Janet	Va.....	mar. etc	brownish ..	spreading.....	tender .
90	Red Astrachan	Russia ?.	market.	.....	.....	hardy..
91	Red Canada		mar. etc	.....	slender	hardy..
92	Red Russet.....	N. H.....	.....	.....	.....	.....
93	Rhode Island Greening..		mar. etc	dark	crooked	tender .
94	Richards' Graft.....	N. Y.....	.....	steut, dark.	.....	.....
95	Roman Stem.....	N. J.....	eating ..	.....	small .....	.....
96	Rome Beauty.....	Ohio.....	market.	slender, red	.....	hardy..
97	Roxbury Russet.....	Mass.....	market.	.....	spreading.....	tender .
98	Sangamon Red Streak ..	Illinois ?.	market.	.....	.....	.....

PLANTS, Etc.			PECULIARITIES OF FRUIT, Etc.				Season.	No.
Foliage, etc.	Flowers.	Product.	Size.	Shape.	Color.	Flavor.		
.....	red.....	product	large...	flat	blushed..	acid	Sept. Oct.	67
.....	.....	product	medium	round.....	yellow....	sweet	May, June	68
.....	.....	.....	large...	flat	striped...	sub-acid..	Nov. Jan.	69
.....	.....	product	medium	conical....	yellow ...	sweet	Dec. Jan.	70
dark	reddish ..	.....	small...	conical....	striped...	sub-acid..	Dec. Jan.	71
.....	.....	.....	large...	flat	striped...	sub-acid..	Mar. May	72
.....	.....	product	large...	oblong....	striped...	sweet	Oct. Jan.	73
dark	white	moderate	medium	round.....	yellow ...	acid	Dec. Mar.	74
.....	v. late....	product	large...	conical....	striped...	acid	Dec. May	75
.....	.....	product	large...	round.....	yellow ...	sweet	Sept.	76
.....	whitish...	product	large...	flat	striped...	sub-acid..	Mar. May	77
.....	reddish ..	product	large...	oblong....	yellow ...	acid	Nov. Jan.	78
.....	.....	product	large...	round.....	white	sweet	Dec. Mar.	79
.....	reddish ..	product	large...	round.....	yellow ...	sub-acid..	Dec. Jan.	80
sharp .....	.....	.....	large...	flat	striped...	sub-acid..	Dec. Feb.	81
large .....	.....	product	medium	flat	russet....	acid	Dec. Jan.	82
.....	.....	product	small...	flat	russet....	sub-acid..	Jan. Mar.	83
.....	.....	product	large...	oblong....	yellow ...	acid	Aug. Oct.	84
.....	reddish ..	product	medium	round.....	yellow....	sub-acid..	July Aug.	85
scattering	.....	product	large...	round.....	russet....	sub-acid..	Dec. Feb.	86
light gr'n	whitish ..	product	medium	flat	striped...	sub-acid..	Oct. Dec.	87
whitish...	.....	product	medium	oblong....	striped...	sweet	Sep. Dec.	88
.....	.....	product	medium	conical....	striped...	sub-acid..	Feb. Mar.	89
large	white	shy ?...	large...	flat	striped...	acid	July	90
wavy	reddish ..	product	medium	conical....	striped...	sub-acid..	Dec. Feb.	91
.....	.....	.....	large...	round.....	russet....	sub-acid..	Jan. April	92
dark .....	.....	product	large...	flat	green	sub-acid..	Oct. Dec.	93
.....	.....	product	medium	flat	striped...	sub-acid..	Sep. Oct.	94
.....	whitish ..	product	medium	round.....	yellow ...	sub-acid..	Dec. Jan.	95
.....	late	product	large...	flat	striped...	sub-acid..	Dec. Feb.	96
gray .....	.....	product	large...	flat	russet....	acid	Nov. Jan.	97
.....	.....	.....	large...	conical....	striped...	sub-acid..	Nov?	98

No.	NAME	Origin.	Use.	PECULIARITIES OF		
				Class, etc.	Height or Shape.	Hardness.
99	Sine Qua Non	N. Y.	eating ..	light green.	round head ..	.....
100	Smith's Cider	Penn.	market.	slender.....	vigorous.....	hardy..
101	Smoke House .....	.....	.....	.....	.....	.....
102	Sops of Wine .....	.....	market.	stout	spreading.....	hardy..
103	Sparks' Late .....	.....	.....	stout	upright .....	.....
104	Stannard	N. Y.	mar. etc.	large.....	spreading.....	hardy..
105	Stark .....	.....	.....	brown, red.	upright .....	.....
106	Stri'd or Scol'd Gillifl'r .....	.....	.....	long .....	.....	.....
107	Striped Pippin .....	.....	.....	.....	.....	.....
108	Summer Queen	N. Y.	market.	.....	spreading.....	hardy ?
109	Summer Rose	N. J.	eating ..	stout	spreading.....	hardy..
110	Swaar	N. Y.	eating ..	stout, dark.	spreading.....	.....
111	Sweet Vandevere .....	.....	.....	slender .....	.....	.....
112	Tart Bough .....	.....	.....	.....	.....	.....
113	Tewksbury Win. Blush	N. J.	eating ..	.....	upright .....	.....
114	Tolman's Sweeting	R. I.	feed, etc.	.....	spreading.....	hardy..
115	Transcendent Crab .....	.....	.....	.....	.....	hardy..
116	Twenty Ounce Apple..	Conn. ....	.....	slender	round head ..	.....
117	Vandevere Pippin	Penn. ? ..	.....	stout	spreading.....	.....
118	Wagener	N. Y.	eating ..	stout	upright .....	.....
119	Westfie'd Seek-no-furt'r	Conn.	tab. etc.	.....	spreading.....	hardy..
120	White Pippin .....	.....	mar. etc.	shoots dark	upright .....	.....
121	White Winter Pearmain .....	.....	.....	dark	spreading.....	.....
122	Winesap	N. J.	tab. etc.	.....	spreading.....	hardy..
123	Willow Twig	Virginia ..	mar. etc.	slender	spreading.....	.....
124	Williams' Favorite	Mass. ....	.....	.....	spreading.....	.....
125	Wine Apple, Hays' or Pa. R. S. ....	.....	cook, etc.	slender	upright	tender ..
126	Yellow Bellefleur	N. J.	eat. etc.	yellowish ..	drooping.....	.....
127	Yellow Ingestrie	England ..	.....	.....	.....	.....
128	Yellow Siberian Crab .....	.....	.....	.....	.....	.....
	<i>Spectabilis (Chinese Flow Crab)</i>	China.	orn .....	.....	.....	.....

PLANTS, Etc.			PECULIARITIES OF FRUIT, Etc.				Season.	No.
Foliage, etc.	Flowers.	Product.	Size.	Shape.	Color.	Flavor.		
.....	white..	.....	medium	conical....	white....	sub-acid..	July Aug.	99
.....	whitish	product	medium	round.....	striped ..	sub-acid..	Dec. Jan..	100
.....	.....	.....	large....	flat	striped ..	sub-acid..	Oct. Nov..	101
.....	whitish	product	medium	round.....	striped ..	sub-acid..	July Sep..	102
.....	.....	product	medium	oblong.....	yellow....	sub-acid..	Dec. Jan..	103
.....	.....	product	large....	roundish..	striped ..	sub-acid..	Nov. Feb..	104
.....	.....	product	large....	roundish..	striped ..	sub-acid..	Dec. May	105
.....	.....	.....	large....	oblong.....	striped ..	sub-acid..	Sept	106
.....	.....	.....	.....	.....	.....	.....	.....	107
crenate ..	whitish	prod't ?	large....	conical	striped ..	sub-acid..	July Aug.	108
glaucous..	.....	product	small ..	round.....	striped ..	sub-acid..	July Aug.	109
large.....	reddish	product	large....	round.....	yellow....	sub-acid..	Dec. Jan..	110
.....	.....	product	large....	flat	striped ..	sweet.....	Dec. Jan..	111
.....	.....	.....	.....	.....	white....	acid .....	.....	112
.....	.....	product	small ..	flat	blushed..	acid	Mar. Ap'l	113
waved ...	whitish	product	medium	round.....	yellow....	sweet.....	Sep. Jan..	114
.....	.....	product	small ..	oblong.....	blushed..	sub-acid..	Aug. Sep..	115
large.....	.....	car. b'r.	large....	conical....	striped ..	acid	Oct. Dec..	116
.....	.....	product	large....	flat	striped ..	acid	Dec.....	117
.....	.....	product	large....	flat	striped ..	sub-acid..	Nov. Dec..	118
serrate...	.....	product	medium	conical	striped ..	sub-acid..	Dec.....	119
large.....	.....	product	medium	round.....	white....	acid	Dec. Jan..	120
.....	.....	product	medium	conical	yellow....	sub-acid..	Dec. Mar..	121
.....	red.....	product	medium	conical	blushed..	acid	Jan. Mar..	122
.....	reddish	product	large....	round.....	striped ..	sub-acid..	Dec. Ap'l	123
.....	.....	.....	medium	round.....	striped ..	sub-acid..	Jul. Aug..	124
small ....	.....	product	large....	flat	striped ..	acid	Oct. Dec..	125
.....	whitish	shy ? ..	large....	conical	yellow....	acid	Oct. Jan..	126
.....	.....	.....	small ..	round.....	yellow....	acid	Sep. Oct..	127
large.....	white..	product	small ..	oblong.....	yellow....	acid	Aug. Sep..	128
smooth ..	rose etc	.....	.....	.....	.....	.....	.....	.....

No.	NAMES.	Origin.	Use.	PECULIARITIES OF		
				Class, Etc.	Height or shape.	Hardiness.
	<i>Prunifolia</i> , (<i>Siberian Crab</i>)	-----	orn. etc	-----	-----	-----
	<i>Baccata</i> (<i>Berry Crab</i>)	-----	orn	-----	-----	-----
	<i>Coronaria</i> (<i>American Crab</i>)	America	orn	-----	small tree	-----
	<i>Americana</i> (<i>Mountain Ash</i>)	America	orn	-----	small tree	-----
	<i>Aucuparia</i> (<i>European Ash</i>)	Europe	orn	-----	medium tree	-----
	CYDONIA (QUINCE).	-----	-----	-----	low trees, etc	-----
	<i>Vulgaris</i> (<i>Common Quince</i>)	Levant	-----	-----	-----	-----
	Orange	-----	-----	-----	-----	-----
	Portugal	-----	-----	-----	-----	-----
	<i>Japonica</i> (<i>Japan Quince</i>)	Japan	-----	-----	-----	-----
	Blush	-----	-----	-----	-----	-----
	Crimson	-----	-----	-----	-----	-----
	CALYCANTHUS FAMILY					
	CALYCANTHUS.					
	<i>Floridus</i>	America	orn	-----	shrub	-----
	SAXIFRAGE.					
	RIDES (CURRANT, ETC.)	-----	fruit, or	-----	-----	-----
	<i>Grossularis</i> (<i>Eng. Gooseb'y</i>)	Europe	-----	-----	-----	-----
1	Woodward's Whitesm'h.	England	fruit	erect	-----	mild'ws
	<i>Hirtellum?</i>					
1	Downing's Seedling	N. Y.	family	slender	upright	vigor'us
2	Houghton's Seedling	Mass.	-----	slender	spreading	vigor'us
3	Mountain Seedling	N. Y.	-----	strong	straggling	vigor'us
4	Pale Red	-----	-----	slender	upright	vigor'us
	<i>Rubrum</i> (<i>Red Currant</i>)					
1	Cherry	Italy	market	stout	-----	-----
2	Gondouin White	France	-----	strong	-----	-----
3	La Versailles	France	-----	-----	-----	-----
4	Long Bunched Red	-----	-----	-----	-----	-----
5	Red Dutch	-----	fam. etc	erect	-----	-----
6	Victoria	-----	-----	slender	spreading	-----
7	White Dutch	-----	-----	-----	-----	-----

PLANTS, Etc.			PECULIARITIES OF FRUIT, Etc.				Season.	No.
Foliage, etc.	Flowers.	Product.	Size.	Shape.	Color.	Flavor.		
.....	white.....	.....	.....	.....	yellowish	.....	.....	1
.....	white.....	.....	.....	.....	.....	.....	.....
ovate.....	reddish.....	.....	.....	.....	green.....	.....	.....
pointed..	white.....	.....	.....	.....	scarlet.....	.....	.....
oblong ..	white.....	.....	.....	.....	scarlet.....	.....	.....
.....	
.....	
oval.....	white.....	.....	large.....	round.....	yellow.....	.....	Sep. Oct.	
large.....	white.....	shy.....	v. large	ob. ovate..	yellowish	mild.....	.....
.....	
oval.....	blush.....	.....	small.....	erect.....	green.....	nneatable	.....
oval.....	crimson..	.....	small ..	.....	green.....	.....	.....
.....	
.....	dull red ..	.....	.....	.....	.....	.....	.....
.....	
.....	.....	product	large.....	roundish...	white.....	best.....	.....	1
.....	.....	v. prod.	medium	roundish...	whitish ..	v. good ..	June July	1
.....	.....	v. prod.	medium	ronndish...	pale red..	v. good ..	June July	2
.....	.....	product	large.....	oval.....	brown red	good.....	June July	3
.....	.....	v. prod.	small ..	oval.....	pale red..	v. good ..	June July	4
thick.....	.....	prod't ?	v. large	round.....	deep red ..	acid.....	June July	1
.....	.....	product	large.....	round.....	yellow.....	sweet.....	June July	2
large.....	.....	product	v. large.	round.....	dark red..	acid.....	June July	3
.....	.....	v. prod.	large.....	round.....	deep red..	.....	June July	4
.....	.....	v. prod.	large.....	round.....	deep red..	rich acid.	June July	5
.....	.....	v. prod.	large.....	round.....	light red.	acid.....	late.....	6
.....	.....	prod't ?	large.....	round.....	yel. white	sweetish..	early.....	7

No.	NAMES.	Origin.	Use.	PECULIARITIES OF		
				Class, &c.	Height or Shape.	Hardness.
2	White Grape.....	-----	amateur	slender.....	spreading....	-----
	<i>Nigrum</i> (<i>Black Currant</i>)..	Europe ..	-----	-----	-----	-----
	Black Naples.....	-----	-----	-----	coarse	-----
	<i>Aureum</i> (<i>Missouri</i>).....	America ..	-----	-----	-----	-----
	Large Fruited Missouri..	-----	fruit etc	-----	-----	-----
	<i>Sanguineum</i>	Oreg. etc.	orn	-----	-----	-----

I N D E X.

INDEX.

REPORT FOR 1870.

	PAGE.
Organization of the Society.....	7
Informal Meeting.....	7
First Regular Meeting.....	8
Articles of Association.....	8
April Meeting.....	10
Remarks on the Cultivation and Varieties of Apples.....	11
Address of the Corresponding Committee.....	16
May Meeting.....	17
Grafting.....	19
Report of Committee on Apples.....	20
Our Orchard System—Address—J. P. Thompson.....	25
Popular Varieties of Hardy Apples—W. L. Waring.....	35
June Meeting—Strawberries and Cherries—H. S. Clubb.....	45
Address—Hon. Flavius J. Littlejohn.....	55
Among the Orchards and Vineyards—Messrs. Clubb and Fassett.....	71
December Meeting.....	78
A State Test Garden—A. T. Linderman.....	83
Fruit Lands of Western Michigan.....	89
Premium List and Rules for First Fair.....	91
The First Annual Fair.....	100
Table showing Comparative Quality, Fruitfulness, and Time of Ripening of 27 Varieties Grapes—Ed. Bradfield.....	105
Governor Baldwin's Address.....	112

SECRETARY'S ANNUAL REPORT—1871.

Introductory.....	116
Officers for 1871.....	119
List of Members.....	120
Laws affecting Horticulture.....	131
Law for the Incorporation of Pomological Societies.....	131
Law regulating size of Peach Baskets.....	133

	PAGE.
Law regulating size of Barrels for Fruit, etc.....	133
Law relating to planting Trees in the Highways.....	134
Law regulating Roads.....	135
Law pertaining to Trespassers.....	135
Law relating to the Willful Injury of Trees.....	136
Law relating to the Removal of Trees.....	136
Law relative to the Destruction of Birds.....	137
Articles of Association.....	138
Minutes of Meetings.....	141
January Meeting.....	143
New Industries—Address—J. P. Thompson.....	146
Free Propagation—Benj. Hathaway.....	155
February Meeting.....	159
Grapes—M. L. Shafer.....	162
Grape Culture—Address—Edward Bradfield.....	164
March Meeting.....	183
Death of Hon Sanford Howard.....	184
Climatology of Michigan.....	184
Wine Making.....	186
Wine Making—Wm. Haldane.....	189
Influence of the Stock on the Graft—J. D. Husted.....	192
Grafting—W. O. Houghtaling.....	198
Varieties of Grapes.....	202
April Meeting.....	206
Cultivation of the Grape—J. G. Ramsdell.....	207
May Meeting.....	215
June Meeting.....	217
July Meeting.....	219
Adjourned Meeting.....	220
August Meeting.....	221
September Meeting.....	223
October Meeting, held at Spring Lake.....	225
Peaches and Apples Compared—Chas. Soule.....	227
November Meeting.....	230
Our Visit to Michigan—Chas. Downing.....	234
The Kalamazoo Grape—W. G. Wells.....	236
December Meeting.....	242
On discarding the Concord—Report—Jacob Ganzhorn.....	244
Report of Auditing Committee.....	252
Officers, Rules, and Regulations of Second Annual Fair.....	255
List of Premiums.....	262
Report of Awarding Committees.....	275

	PAGE.
Home Fruits.....	291
Foreign Fruits.....	295
Flowers.....	296
A Grand Success.....	297
Snout Beetles Injurious to Fruits—Chas. V. Riley.....	298
The <i>Curculionide</i> , or Snout Beetles.....	305
The Common Plum Curculio (Illustrated).....	307
It is Nocturnal, rather than Diurnal.....	311
The Ransom Chip-Trap Process.....	311
Keeping in check by the offer of Premiums.....	315
Jarring by Machinery (Illustrated).....	315
Two True Parasites of the Plum Curculio (Illustrated).....	319
The Apple Curculio (Illustrated).....	327
Its Natural History.....	329
It Transforms in the Fruit.....	330
The Amount of Damage it does.....	332
The Season of the Year during which it Works.....	333
Remedies and Preventive Measures.....	333
The Quince Curculio (Illustrated).....	335
How it Differs from others.....	335
Its Transformations and Habits.....	337
Remedies.....	339
The Plum-Gouger (Illustrated).....	341
Its Character, Distribution, and Food.....	341
Often mistaken for the Plum Curculio.....	342
Its Time of Appearance, and History.....	343
Remedies.....	344
The Strawberry Crown Borer (Illustrated).....	344
Conclusion.....	349
Report of Delegation to American Pomological Society.....	357
Address of President Wilder.....	369
Lessons of Experience.....	372
The Influence of Warm, Dry Seasons.....	372
Draining of Fruit Lands.....	373
Preparation and Cultivation of the Soil.....	373
Manures and their Application.....	374
Mulching.....	374
Thinning of Fruit.....	375
Insects and Diseases.....	375
Shelter.....	378
Meteorology.....	379
Originating New Varieties.....	380

	PAGE.
Conclusion.....	387
Report of the South Haven Pomological Society.....	407
Introduction by Secretary.....	407
Climate.....	409
Soil.....	410
Peach Culture.....	410
Open-air Fig Culture.....	412
Grape Culture at South Haven.....	413
Marketing Advantages.....	416
Pear Trees—B. Hathaway.....	418
Test Gardens—Geo. Parmelee.....	423
The Point de Peau Vineyard and its Wine.....	426
Clearing Stump Lands for the Peach—S. B. Peck.....	436
Varieties of Peaches—S. B. Peck.....	439
Statement of Spring Lake Vineyards and Orchards.....	442
The Codling Moth.....	450
Does Fruit-Growing Pay?.....	451
Will Apple Culture Pay?.....	451
Selection of Apples for Orchards.....	452
Raspberries, New and Old—Benj. Hathaway.....	453
Michigan Vineyards.....	457
Michigan <i>versus</i> Arizona.....	462
Yellows in Peaches—Prof R. C. Kedzie.....	464
History of the Yellows.....	467
Symptoms of the Yellows.....	469
Mode of Propagation of the Disease.....	470
Cause of the Yellows.....	471
Investigation and Microscopic Examination.....	472
Analysis of Ash.....	476
Remedial Measures.....	480
Concerning the Meteorology of Michigan—Prof. Kedzie.....	484
Table of Fruits, Flowers, etc.....	495

New York Botanical Garden Library



3 5185 00259 0972

